

**THE CONNECTICUT
POMOLOGICAL SOCIETY**

1906 - 1907

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PLATE I.



JOHN C. EDDY OF SIMSBURY,
PRESIDENT OF THE CONNECTICUT POMOLOGICAL SOCIETY, 1905-1906.

REPORT
OF THE
Connecticut Pomological
Society

FOR THE YEAR 1906

*WITH PROCEEDINGS OF THE
SIXTEENTH ANNUAL MEETING*

1907



PUBLISHED BY
THE CONNECTICUT POMOLOGICAL SOCIETY.
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CHAPEL



OFFICERS
OF THE
Connecticut Pomological Society
FOR 1907.

President.

JOSEPH H. PUTNAM, Litchfield.

Vice-President.

ELIJAH ROGERS, Southington.

Secretary.

HENRY C. C. MILES, Milford.

Treasurer.

ORRIN GILBERT, Middletown.

County Vice-Presidents.

Hartford—STANCLIFF HALE, South Glastonbury.

New Haven—M. L. COLEMAN, Seymour.

Fairfield—WILLIAM E. WALLER, Bridgeport.

Litchfield—CHARLES L. GOLD, West Cornwall.

Middlesex—CHARLES E. LYMAN, Middlefield.

New London—CHARLES A. GRAY, Norwich.

Windham—EVERETT E. BROWN, Pomfret Center.

Tolland—CLARENCE H. SAVAGE, Storrs.

Standing Committees.

Legislation.

J. H. HALE, South Glastonbury.

ELIJAH ROGERS, Southington.

J. C. EDDY, Simsbury.

Finance.

N. S. PLATT, New Haven.

S. M. FOSTER, Westport.

G. A. HOPSON, Wallingford.

Membership.

A. B. COOK, Farmington.

DUDLEY WELLES, 2d, Wethersfield.

A. T. HENRY, Wallingford.

Exhibitions.

L. C. ROOT, Farmington.

GEO. H. HALE, South Glastonbury.

PROF. A. G. GULLEY, Storrs.

Injurious Insects.

DR. W. E. BRITTON, New Haven.

C. D. JARVIS, Storrs.

WILLIS E. FROST, Bridgewater.

Fungous Diseases.

DR. G. P. CLINTON, New Haven.

OSCAR F. ATWOOD, Brooklyn.

A. C. INNIS, Ridgefield.

New Fruits.

G. A. DREW, Greenwich.

R. H. GARDNER, Cromwell.

T. L. BROWN, Black Hall.

Markets and Transportation.

J. N. BARNES, Yalesville.

C. E. LYMAN, Middlefield.

S. A. FLIGHT, Highwood.

Auditors.

GEORGE W. STAPLES, Hartford.

ANDREW KINGSBURY, Coventry.

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Constitution and By-Laws of the Society.*

THE CONSTITUTION.

ARTICLE I.—The name of this Association shall be THE CONNECTICUT POMOLOGICAL SOCIETY.

ARTICLE II.—Its object shall be the advancement of the science and art of pomology, and the mutual improvement and business advantage of its members.

ARTICLE III.—Any person may become a member of this Society by paying into the treasury the sum of one dollar, and the membership shall cease at the end of the current year.

Any person may become a life member of this society by the payment of the sum of ten dollars at one time. All moneys from life memberships to form a permanent investment fund of the Society,

ARTICLE IV.—Its officers shall consist of a President, First Vice-President, one Vice-President from each county in the State, a Secretary and a Treasurer, to be elected annually by ballot, to hold office for one year, or until their successors are duly elected.

The President, First Vice-President, Secretary and Treasurer shall constitute the Executive Committee of the Society.

ARTICLE V.—The Society shall hold its annual meeting during the month of February, the time and place to be decided by the Executive Committee, at which time the annual election of officers shall be held, various reports submitted and an exhibition and discussion of fruits take place; also other necessary business be transacted. Other meetings for special purposes may be arranged for and called by the Executive Committee whenever it is deemed advisable. Printed notice of each meeting to be sent to every member of this Society.

ARTICLE VI.—The following Standing Committees of three members each, on the following subjects, shall be appointed by the President, to hold during his term of office; the appointments to be announced at the annual meeting of the Society.

* Including revisions of 1906 and 1907.

*Business and Legislation,
Injurious Insects,
Exhibitions,
Membership,*

*Fungous Diseases,
New Fruits,
Markets and Transportation.
Two Auditors.*

ARTICLE VII.—This Constitution may be amended by a vote of two-thirds of the members present at any annual meeting.

BY-LAWS.

ARTICLE I.—The President, Secretary, Treasurer and the chairman of each standing committee shall each present a report at the annual meeting of the Society.

ARTICLE II.—The President shall appoint annually two members to audit the accounts of the Secretary and Treasurer.

ARTICLE III.—The Treasurer shall pay out no money except on the written order of the President, countersigned by the Secretary.

ARTICLE IV.—All members whose memberships have not been renewed before the end of the current year, shall be notified of the fact previous to the removal of their names from the roll.

ARTICLE V.—It shall be the duty of the Executive Committee to arrange the programs for the meetings of the Society, to fill all vacancies which may occur in its officers between the annual meetings, and to have general management of the affairs of the Society.

ARTICLE VI.—It shall be the duty of the County Vice-Presidents to actively represent the Society in its various lines of work in their respective counties,—to arrange for at least one meeting of the Society in their county during the year, and to report to the Society from time to time the progress of the fruit growing industry in their respective sections of the state.

ARTICLE VII.—The Committee on Legislation shall inform themselves in regard to such laws as relate to the horticultural interests of the state, and bring the same to the attention of the Society and also the need of further legislation. And when so directed by the Society, shall cause to be introduced into the General Assembly such bills as may be deemed necessary, and to aid or oppose any bills introduced by others, which directly or indirectly affect the interests of the fruit-grower.

ARTICLE VIII.—The Committee on Membership, with the coöperation of the County Vice-Presidents, shall bring the work of the Society to the

attention of fruit-growers throughout the state, and, by such means as they deem best, strive to increase the membership.

ARTICLE IX.—The Committee on Exhibitions shall suggest from time to time such methods and improvements as may seem to them desirable in the conduct of the exhibitions of the Society, as well as fruit exhibitions throughout the state ; and with the assistance of the Executive Committee shall arrange the premium lists, and have charge of all Exhibitions given by this Society.

ARTICLE X.—It shall be the duty of the Committees on Insects and Diseases to investigate in regard to the ravages of these enemies of fruit culture ; and to suggest how best to combat them and prevent their spread ; to answer all inquiries addressed to them by the members as far as possible, and, when necessary, promptly lay before the Society timely information on these subjects.

ARTICLE XI.—The Committee on New Fruits shall investigate and collect such information in relation to newly-introduced varieties of fruits as is possible, and report the same to the Society, with suggestions as to the value of the varieties for general cultivation.

ARTICLE XII.—The Committee on Markets and Transportation shall inform themselves as to the best methods of placing fruit products upon the market, and bring to the attention of the members of the Society this and any other information concerning profitable marketing.

ARTICLE XIII.—The Society will adopt the nomenclature of the American Pomological Society.

ARTICLE XIV.—These By-Laws may be amended by a majority vote of the members present at any regular meeting.

The
**Connecticut Pomological
Society**

PROCEEDINGS OF THE 16TH ANNUAL MEETING.

THE Executive Committee, as required by the Constitution, made arrangements for holding the 16th annual meeting of the Society at Unity Hall, Hartford, on February 5 and 6, 1907, but owing to a severe snowstorm the previous night, which blocked all transportation lines, making it impossible for members to reach Hartford, it was decided to defer the opening of the convention until Wednesday morning, Feb. 6.

When President J. C. Eddy of Simsbury called the meeting to order at 10.30 a. m., Wednesday, Feb. 6, there was a good attendance of members on hand and later arrivals increased the attendance of the first day to fully 500, and much interest and enthusiasm was shown in the many splendid addresses and discussions.

The stage presented a most attractive appearance, choice specimens of fruits being displayed in tasty baskets, boxes and pyramids, the beauty of the whole setting enhanced by a background of palms, with here and there a display of cut flowers and flowering plants.

Following the opening of the meeting, President Eddy delivered his annual address, as follows:

President's Address.

Members and Friends of the Connecticut Pomological Society:

I am glad to welcome so many of you to the sixteenth annual meeting of the Society. We hope and expect to have an interesting and profitable meeting,—one at which many new ideas and practical points of pomological progress will be brought out and discussed. We have a number of practical

and successful speakers on our program, whom it will be well worth our while to hear. Seed-time and harvest of another year have passed; whether or not it has proved profitable to the fruit-grower has depended upon circumstances. Much depends upon the skill and judgment with which orchard sites have been selected, profitable varieties planted, faithful cultivation and spraying given and businesslike methods of handling and marketing the crop when grown. With all the skill and judgment possible, full success is not always certain. Nature and climatic conditions bring forces against us that cannot be entirely surmounted by the best skill and persistent work. Extreme cold in winter, frosts in spring, droughts or wet weather at harvesting time, all conspire to cut down the profits. However, the past season, upon the whole, has been a fairly profitable one for the fruit grower, and the outlook is good for increased interest in fruit-growing for the home and market.

An active, interested, enthusiastic membership is a necessity to make our work as a Society successful; as we have often stated, "it is the mission of the Pomological Society to encourage among the people a greater love and appreciation for choice fruit products, to awaken a larger interest in the advantages of Connecticut as a fruit-producing state, and to offer practical suggestions and help to all fruit growers along the lines of planting, cultivating, spraying, packing and marketing." It is the ambition of our Society to carry out this mission, and by so doing add value to our state in taxable property and as a state that it is good to live in. A great deal has been accomplished along these lines, and much remains to be done. It has been a matter of pride and loyalty among our members to help the good work along. We hope this spirit of interest in the work of the society for the general good of our commonwealth will continue and increase. We want your dollar for membership dues, but much more we want your active help in spreading the idea, that Connecticut ought to raise a larger part of the tree fruits and grapes consumed in our state. We know that at present only a small part of the apples and grapes are grown on Connecticut soil; this ought not to be.

We have the markets, we have the hills adapted to growing

the best of fruits, and I believe we have the men who will grow this fruit in the near future, in a much larger degree than at present.

Other state organizations are working in accord with us in their special lines to bring out the possibilities of our soil. In this the Connecticut Agricultural College is an important factor. The work of our former President, Professor Gulley, in instructing our young men at the college along practical pomological lines, is beginning to bear fruit on our farms, and will be even more appreciated in the future. The practical work and knowledge of profitable varieties gained by the instruction at the college is valuable. There are now in bearing on the college grounds, 100 varieties of apples, 25 of pears, 40 of peaches, 30 of plums, 15 of cherries, and over 50 of grapes, none of which were there when that department was placed in Professor Gulley's charge. This does not include a long list not yet fruited nor the plantation of ornamental plants. From this it will be seen that the facilities for practical outside work have been made first-class, and that through this thorough work the college has been able to make exhibits of varieties at our annual exhibition and at several of the fall fairs, which have been object lessons of much value and interest to all lovers of good fruit.

The special need at the Agricultural College now is for an up-to-date greenhouse and a building for practical winter instruction in horticultural lines. We hope the present Legislature will realize that it is for the public good to provide the necessary buildings.

It is a cause for congratulation that our State Entomologist, Professor Britton, with the help of the State Board of Agriculture, was promptly on the ground to head off the Gypsy moth on its first entrance into our State. The surprising part of the matter is that it was known locally that the pest was present, six months before being reported to the proper authority. It is almost certain that it will appear in other parts of the state in the near future; if so, let us hope that it will be promptly reported.

No class of farm dwellers are more interested in good roads than fruit growers. The growers who market their

fruit in the cities of the state, of necessity must often travel in the night. Then, if ever, a good road is appreciated, not only for safety but for the larger load that can be taken. The auto truck will soon be used in the fruit season where the roads will allow it. Let us advocate good roads until there is a network of them all over the state; but at the same time, let us ask the Legislature to pass stringent laws to regulate the reckless autos so that they will be made to realize that the roads are for all the people.

The National Grange will meet in Hartford next November. On these occasions it is customary to have the farm products of the state on exhibition. Worthy State Master Wood wishes the co-operation of our Society in making a display of Connecticut fruit. Please bear this in mind and save the very best fruit possible for this exhibition, and thereby show our visitors from other states what Connecticut can do along fruit lines. At the request of the Jamestown Commission, seventy-five barrels of apples were put in cold storage last fall. More of the early fall fruit will be wanted for the exposition display from Connecticut this season.

The question of the right of using farm property as a game preserve for wild deer will have to be settled soon, as in some parts of the state considerable damage has already been done. The fruit men are especially interested, as our hill lands near the haunts of the deer are among the best situations for profitable peach culture; these lands cannot be used if the deer are to be protected and allowed to increase as they are now doing. The fact that the state will pay for actual damage to trees or crops is no safeguard or satisfaction. It is the prospective value of a young orchard that the owner has worked for and for which the state will not pay, that is lost, a value that cannot be estimated. The fear of this damage will prevent some of the best peach land from being used, unless the present law is changed. If the advocates of breeding wild deer will confine them within limits owned or leased by themselves, we have no objection, but we do object to having all our crops open to a raid at any time. With the number of farmers and level-headed business men in the Legislature it does not seem possible that this condition of things will con-

time. Let us as an association do all we can to have the present law repealed, in the interests of fair play and justice.

If worthy of all praise is the man that makes two blades of grass grow where but one grew before, what shall we say of the man that takes acres of our roughest hill-tops, of no practical present value, and by the hardest kind of work, plants orchards that will in the future produce thousands of dollars worth of the most luscious peaches and rosy apples? What sight is more beautiful than a large orchard in full bloom or when loaded with rosy fruit, multiplying a thousand-fold the vision seen by the poet Bryant in the last century when he wrote :

“Come, let us plant the apple tree.
Cleave the tough greensward with the spade;
Wide let its hollow bed be made;
There gently lay the roots, and there
Lift the dark mould with kindly care,
And press it o’er them tenderly,
As, round the sleeping infant’s feet
We softly fold the cradle sheet;
So plant we the apple tree.

What plant we in this apple tree?
Buds, which the breath of summer days
Shall lengthen into leafy sprays;
Boughs where the thrush, with crimson breast
Shall hant and sing and hide her nest;
We plant upon the sunny lea,
A shadow for the noontide hour,
A shelter from the summer shower,
When we plant the apple tree.

What plant we in this apple tree?
Sweets for a hundred flowery springs,
To load the May wind’s restless wings,
When, from the orchard row, he pours
Its fragrance through our open doors:
A world of blossoms for the bee,
Flowers for the sick girl’s silent room,
For the glad infant sprigs of bloom,
We plant the apple tree.

What plant we in this apple tree?
Fruits that shall swell in sunny June

And redden in the August noon,
And drop, when gentle airs come by
That fan the blue September sky,
While children come, with cries of glee,
And see them where the fragrant grass
Betrays their bed to those who pass,
At the foot of the apple tree."

The annual report of the Secretary, H. C. C. Miles, was next presented.

Secretary's Report.

Mr. President and Fellow Members:

The rapid flight of time has added another year to the life of our Society, "the recognized organization of the fruit growers of the state," and again we are assembled in annual convention to note the progress made thus far, and to consider the work which lies before us in the year to come. The year 1906 has been a busy one in the work of the Society, and although there are no new or notable features to record, there has, I believe, been a general forward movement in our efforts to increase the usefulness of the organization to the fruit growers of the state.

We have tried to keep clearly in mind the specific object of the Society, which is "to encourage and advance the science and art of pomology and the mutual improvement and business advantage of Connecticut fruit growers." How well we have lived up to this object the present condition of the fruit-growing interests of our state will attest. Certain it is, that the Pomological Society has grown to be a permanent fixture in the agricultural life of Connecticut and its splendid work is recognized and appreciated not only by every fruit grower, but by all farmers and the general public as well. Fellow members, you may congratulate yourselves that your work and influence has played no small part in the agricultural development of your state; while the future holds opportunities for still stronger effort and greater achievement.

There never was a time when the need of organization

among farmers was more imperative. Let us hold fast to what we have gained and prepare ourselves for future developments.

To the Connecticut fruit grower the season of 1906 was one of part success and part failure. Successful, as regards the peach and berry crops, more or less of a failure with the apple and some of the other tree fruits. A very satisfactory peach crop was harvested under excellent conditions and sold at generally satisfactory prices. Small fruits yielded well and found a ready market. The apple crop, owing to unfavorable conditions following the blooming season, was extremely light, except in the eastern portion of the state, and plums were almost a total failure. While most conditions governing the production of fruits are within the control of the grower, those of climate and sudden changes of temperature are as yet beyond his skill.

Having always to fight for what they produce, our growers are now reckoning with an enemy worse than all others—the *San José Scale*—which is spreading with an alarming increase over the orchards and gardens of the state. Few, if any, fruit trees or ornamentals seem to be safe from the attacks of this pest. While the owner of large orchards, who gives his entire attention to the culture of fruit crops, may not be alarmed by the advent of the scale, still to the small grower or the man who values the fruit trees in his garden or about his home, the situation is alarming, for he must very soon find that unless prompt measures are taken his trees will be doomed.

No one who has a real love for fine fruits can help but feel some regret for the loss of the splendid old trees, especially of apple, that have so long been a feature on our farms and about our homes. These will soon be a thing of the past unless some unforeseen force stays the march of the scale. Without doubt the coming of the scale is affecting a great change in fruit-growing methods and some *optimists* tell us it is a change for the better. It is certainly forcing all who would produce good fruit to take up the matter of spraying, and generally to give better care to their trees, and this leads to other good results besides killing the scale. But all this increases the cost of production and consumers must expect to pay more for their

fruits in the future. Then, too, the problem of the scale discourages many who would otherwise start in the business of fruit growing; but on the other hand, there is no question but that for the man who will work intelligently and give his trees the right care at the right time, the future offers bright prospects for success, and the indifferent grower will be driven out of the business. So, after all, we may take a hopeful view of the matter, trusting that the scourge may soon run its course, and in the end we shall be better off for having passed through the fight.

At all our institutes and meetings the interest in the scale question is plainly shown and there is a desire for more information about the insect and how to combat it. We believe the Society can perform no better service to the fruit interests, than to devote largely of its time and means in awakening the people to the need of prompt measures in fighting the scale pest. To teach growers how to detect the presence of the scale and what may be accomplished by means of co-operative work in spraying, as well as the importance of destroying sources of infection; could not help but result in saving many thousands of trees. We hope that provision for this work will be made.

But to come now to the actual condition of the Society upon which it is my duty to inform you—first the subject of

OUR MEMBERSHIP.

We started the year 1906 with 575 members. During the past year we have received 105 new members, making the total number on our roll for the year, 680.

The losses have been as follows: 4 members have died, 92 members on list of 1905 and 78 on list of 1906, failed to renew their membership, and these, according to our new rules, were dropped from the roll January 1.

After deducting these losses, our total number of paid-up members February 1, 1907, is 510.

This is not as large a showing as many of us hoped the year would give, but the unusual losses must be accounted for by the change made in our by-laws at last annual meeting, re-

quiring all memberships to be paid strictly within the current year. From now on we shall be relieved of carrying any "dead material," and with active work on the part of our Membership Committee and also every member of the Society there is no good reason why we cannot work steadily toward our aim of 1000 members. Let every member feel it a matter of duty as well as pride, to bring into the organization at least one new member this coming year.

The Life Membership plan should appeal to many of us! What better service can a man render his state than to contribute to the permanent life fund of such a Society as ours, that future generations of fruit growers may reap the benefits?

OUR FINANCES.

From Feb. 1, 1906, to Feb. 1, 1907, I have received and paid over to the Treasurer:

From annual membership fees.....	\$495.50
" life membership fees.....	30.00
" sales of fruit at annual exhibition.....	18.40
<hr/>	
Total.....	\$543.90

I have drawn orders for the payment of bills to the amount of \$1,891.16.

The expenditures in the various departments of work are classified as follows:

Annual meeting of 1906.....	\$270.54
Annual report.....	492.97
Annual Fall exhibition—	
Running expenses.....	\$125.26
Premiums paid.....	287.33
<hr/>	
	412.59
Institute work (paid out from Feb. 1, 1906, to Feb. 1, 1907).....	323.94
Crop reporting.....	13.00
Field meetings.....	6.95

Secretary's office, expenses and supplies..	\$ 87.75	
Salary, balance on year 1905.....	75.00	
Paid on account year 1906.....	125.00	
	<hr/>	287.75
Miscellaneous printing, postage and advertising....		71.44
Sundry items.....		11.98
		<hr/>
Total.....		\$1,891.16

MEETINGS.

Besides the annual meeting last February, the Society has held one summer Field Meeting, the annual exhibition in September at Willimantic, and 17 Institutes during the winter and fall of 1906 and up to Feb. 1 of the present winter. The Executive Committee made a strong effort to carry out a series of Summer Field Meetings, but with rather poor success, invitations from our members not materializing. Promises of assistance were made by several growers early in the season, but these had to be withdrawn later, because of unfavorable weather and the consequent delay to farm work. We, however, did hold one gathering on the grounds of the State Experiment Station at New Haven, July 16, which was well attended and successful in every way. It is always very interesting as well as instructive to visit this well-conducted institution and study the valuable work being done there. This year the new experimental grounds in Hamden were of special interest, as showing what is being done in actual field tests. To Director Jenkins and his efficient corp of assistants, the Society feels greatly indebted, not only for the pleasures of this meeting but also other favors shown us.

We should all dislike to see the field meetings discontinued, for they are of the greatest interest and value to us in our work as fruit growers, but to carry them out we must have the co-operation of those of our members who are able and willing to invite the Society to visit their farms. Let us hope that the coming season many will feel disposed to act as host and give their fellow fruit growers a chance to see and study their methods and work. With the present size of the Society we

can hardly expect any member to bear the entire expense of such a gathering, and the Society should stand ready to meet a part of the cost.

Interest in our Annual Exhibition grows from year to year, and last season we received offers from 6 different fairs, viz.: Rockville, Willimantic, Berlin, Newtown, Greenfield Hill, and Waterbury. After very careful consideration your Executive Committee decided on Willimantic, and accordingly the exhibition was held there Sept. 18-20. Owing to the shortage of the apple crop and some other fruits and the fact that it was held in the extreme eastern section of the state, the exhibit was not quite as large as in former years, many of our old exhibitors being absent. The show was a very creditable one, however, the display of peaches being especially fine. Visitors to the Willimantic fair were loud in their praises of the splendid exhibition.

The number of exhibitors was 35 and premiums amounting to \$299.55 were awarded.

For the future the problem in connection with our exhibition will be, whether to hold it in a different part of the state each year or select a permanent home for the show, as many would like to have us do. In view of the fact that no other single feature of the Society's work is of so much educational value, "pomologically" speaking, it would seem to be a wise thing to give every section of the state the benefit of it, before making permanent headquarters anywhere.

INSTITUTE WORK.

This work has been conducted on about the same lines as in previous years, and continues to grow in popular favor. The institute season usually covers the entire fall and winter, but from February, 1906, to February, 1907, we have held 17 institutes, including practically every county in the state. In most cases the meetings were held upon invitation of the Granges and were on the whole well attended and profitable gatherings. Our aim has been to reach those farming communities remote from the cities and large towns, believing that *there* the work of the institute is most needed and that good and lasting results will follow.

A first visit of the Society to such towns is sure to be followed by an urgent invitation to come the next year. Thus it will be seen that the value of the institute is as potent as ever and its possibilities as yet but faintly realized. Under present conditions our Society can do no better than meet the demand for this educational work, since it offers us the very best opportunity to carry the helpful work of our Society to the largest number of farmers and fruit growers.

We must admit that the present system of institute work in Connecticut is far from satisfactory and the time must soon come when the several agricultural bodies in the state engaged in the work will see the wisdom of consolidating their efforts in this line and bringing the entire work under the supervision of a competent head. The Pomological Society has long favored such a change and holds itself ready to do its part toward securing the right plan of reorganization.

Good work is undoubtedly being done now, but the state has a right to demand still better, and should be willing to support the Farmers' Institute movement in a liberal manner.

Our Annual Report was issued as usual in the spring and made a volume of some 240 pages. The value of these publications increases from year to year and their value for reference in the future can hardly be estimated. Every member should see to it that he misses none of these books as they appear, for their worth is many times greater than the slight cost of membership.

CROP REPORTS.

This feature of our work should have more consideration. For a number of years past we have done something in the way of collecting crop estimates and assisting the growers in shipping and marketing their fruits. In seasons of heavy crops the value of such work has been plainly shown. If every grower would appreciate the importance of sending in his figures promptly, better results could be secured and more complete reports issued at the proper time.

Our organization should be equipped for just such work, and growers and buyers have a right to look to us for just this

kind of information. Fruit crop figures and a yearly census of the fruit industry of the state should be available whenever needed for reference, the same as in other states. I would recommend that you provide for this important work in future, by instructing a committee or some officer of the Society to devise and carry out some plan.

Of our work for the new year I do not need to speak at any length. We have a Society made up of the brightest and best men and women in Connecticut who have the best interests of her agriculture at heart.

We propose to keep up the good work, now so well established, counting it our duty as well as privilege to boom our good old state and her great natural advantages as a fruit-producing section, and as the state above all others in which to establish healthy, happy and prosperous rural homes. To study carefully the needs of our fruit growers and be ready to assist and protect them in every possible way—to make it a part of our mission to encourage among our people a love for fine fruits. “For fine fruits are the flower of all the products of the earth, blessings designed by the Creator to please the eye and gratify the taste, to multiply our comforts and elevate our social and moral condition.”

In conclusion, your Secretary desires to express his thanks to all who have so cheerfully labored with him in carrying on the work of the year, and to extend to every member of this Society the hope that the New Year may bring a full measure of happiness and prosperity.

Respectfully submitted,

H. C. C. MILES, *Secretary*.

Upon motion, duly seconded, it was voted that the reports of the officers be accepted and ordered printed in the proceedings.

Treasurer's Report.

FOR THE YEAR ENDING FEBRUARY 1ST, 1907.

ORRIN GILBERT, *Treasurer*,*In Account with THE CONNECTICUT POMOLOGICAL SOCIETY.*

1906.		Dr.
Feb. 7.	To Balance on hand.....	\$ 27.45
8.	Cash received from H. C. C. Miles, Secretary, Membership fees.....	285.00
"	E. Manchester, Fruit sold at Annual Meeting...	.85
Mch. 2.	Secretary Miles, Membership fees.....	14.00
21.	Secretary Miles, Membership fees.....	27.50
30.	from Comptroller, State Appropriation account..	179.57
June 11.	Secretary Miles, Membership fees	47.00
July 9.	Secretary Miles, Membership fees.....	28.00
"	from Comptroller, Balance State appropriation for year ending September 30th, 1907.....	55.45
Sept 18.	Secretary Miles, Membership fees.....	25.00
19.	Secretary Miles, Membership fees.....	8.00
20.	The Horseshoe Park Agricultural Association...	50.00
"	Secretary Miles, Sales Exhibition Fruit.....	18.40
"	Secretary Miles, Membership fees.....	12.00
29	from Comptroller, account State appropriation..	719.36
Dec. 13.	H. C. C. Miles, Secretary, Membership fees....	6.00
1907.		
Jan. 7.	State Board Agriculture	129.61
10.	William Hotchkiss, Premium donated to Society	.50
25.	Secretary Miles, Membership fees.....	31.00
Feb. 1.	Secretary Miles, Membership fees.....	12.00
	To Balance* (due Treasurer, Cash advanced)	214.47
		<u>\$1,891.16</u>

1906.		Cr.
Feb. 8.	By Cash to William H. Skillman, expenses as Speaker at annual meeting.....	\$6.63
"	T. L. Kinney, Expenses at annual meeting. ...	12.33

* (This amount was advanced by Treasurer to meet bills, and the same was duly returned on receipt of funds from State appropriation after February 1, 1907.)

Feb. 8.	George C. Comstock, Services as Assistant to Secretary at annual meeting.....	\$4.00
"	Adams Express Co., Express charges on annual meeting exhibits.....	6.20
"	Samuel H. Derby, Expenses at annual meeting..	13.41
"	The Whitehead & Hoag Co., Membership badges	17.90
16.	By Check to James Draper, Expenses at annual meeting	4.00
"	William H. Honis, Chairman, Rent Unity Hall for annual meeting.....	60.00
"	H. C. C. Miles, Secretary, Office expenses January 1 to February 5th, 1906.....	32.24
"	John Coombs, Plants for Hall decoration for annual meeting.....	5.00
"	H. C. C. Miles, Secretary, Expenses and supplies, account annual meeting.....	10.47
20.	The Stoddard-Brown Co., Half tone cuts.....	6.75
"	Benjamin H. Walden, Expenses and services operating lantern at annual meeting.....	6.38
"	The Milford Citizen, Printing Institute Programs, etc.	12.25
"	J. H. Putnam, Institute expenses October, 1905-February 1, 1906.....	17.14
"	A. B. Gardner, Postmaster, Stamped envelopes.	5.34
"	William G. Dudley, Making one photograph for Annual Report.....	1.25
"	Dr. E. H. Jenkins, Expenses attending Institute	2.66
"	H. G. Manchester, Expenses as Institute speaker	3.15
"	Arthur J. Pierpont, Expenses as Institute speaker	2.14
"	J. Norris Barnes, Expenses as Institute speaker	7.58
"	Professor A. G. Gulley, Expenses attending Institutes.....	14.55
26.	Professor M. V. Slingerland, Expenses and services as speaker at annual meeting.....	32.75
27.	New Dom Hotel, Hotel expenses speakers and officers at annual meeting.....	51.00
"	Professor E. R. Bennett, Expenses attending Institute, January, 1906.....	10.70
"	Professor L. A. Clinton, Institute expenses to February 1, 1906.....	20.26
Mch. 8.	Tuttle, Morehouse & Taylor Co., Membership receipt books and order book.....	9.50
20.	Lincoln W. Morrison, Reporting proceedings of annual meeting.....	45.00
"	A. H. Kirkland, Expenses as speaker at annual meeting....	6.35
"	Clarence H. Ryder, Printing programs for annual meeting.....	9.75

Mch. 8	Kilborn Brothers, Envelopes.....	\$2.15
"	H. C. C. Miles, Secretary, On salary account, year 1905.....	50.00
"	Professor C. K. Graham, Institute expenses.....	11.70
"	The Connecticut Printing Co., Printing Insti- tute programs.....	2.50
May 1.	The Milford Postoffice, 500 stamped envelopes..	5.60
June 29.	H. C. C. Miles, Secretary, Office supplies and expenses February 5 to April 1, 1906.....	37.22
"	Milford Postoffice, 425 stamps for mailing annual reports	25.50
July 9.	The Tuttle, Morehouse & Taylor Co., Printing envelopes and letter heads	14.00
10	Clarence H. Ryder, Printing note heads for Secretary's office....	2.25
12.	Lincoln W. Morrison, Extra work on proceed- ings 15th annual meeting.....	17.00
15.	The Milford Postoffice, 500 postal cards for crop report	10.00
17.	The Stoddard-Brown Co., Making eight half- tones for Annual Report.....	16.05
"	The Milford Citizen, Printing programs for In- stitutes	15.00
"	Charles S. Phelps, Institute expenses....	4.14
"	Professor C. L. Beach, Expenses attending Insti- tute	5.36
Aug. 1.	Joseph R. Clark, Stamped envelopes and postal cards for Field meeting.....	8.30
"	H. C. C. Miles, Secretary, Balance of salary, year of 1905.....	25.00
"	Professor E. R. Bennett, Traveling expenses at- tending four Institutes	17.99
Sept. 18.	Kilborn Bros., Envelopes for mailing Annual Reports	4.77
"	Milford Citizen, Postal cards and printing notice of annual exhibition	6.50
"	Milford Postoffice, 500 1c. stamped envelopes...	5.60
19.	Thomas E. Cross, Services and expenses as Judge at annual exhibition.....	20.50
20.	Joseph H. Putnam, Annual meeting, Institutes, and Executive Committee meetings, ex- penses.....	18.98
"	Professor A. G. Gulley, Supplies and expenses, and expenses of assistants, annual exhibi- tion	12.50
"	George C. Comstock, Services and expenses as entry clerk at annual exhibition.....	11.00

Sept. 20.	Adams Express Co., Express charges on exhibits	\$10.47
22.	Professor E. M. East, Traveling expenses, Institute.....	3.00
"	Dr. G. P. Clinton, Traveling expenses, Institutes	4.55
"	Standliff Hale, Institute expenses.....	2.66
"	Dr. W. E. Britton, Institute expenses.....	14.69
"	H. G. Manchester, Traveling expenses attending Institutes.....	5.10
"	H. O. Daniels, Traveling expenses attending Institutes.....	3.36
"	J. Norris Barnes, Traveling expenses, Institutes..	5.05
Oct. 11.	The Fair Publishing House, Entry books and Judges' books for annual exhibition.....	5.00
12.	Professor A. G. Gulley, Institute expenses.....	18.61
"	The Hall & Bill Printing Co., Printing programs for Institute.....	3.00
"	H. C. C. Miles, Secretary, Office expenses and supplies, April 1st to September 1st, 1906...	23 18
"	H. C. C. Miles, Secretary, Expenses and supplies for annual fruit exhibit.....	14.94
"	Clarence H. Ryder, Printing premium list and entry cards, annual exhibition.....	13.50
26.	Andrew Kingsbury, For cash advanced to pay bill on account 1905 exhibition ..	3.00
30.	H. C. C. Miles, Salary as Secretary on account year 1906.....	75.00
"	Clarence H. Ryder, Printing and binding 675 copies Annual Report 1906.....	383.40
"	L. C. Root, Exhibition Committee, Expenses annual exhibition.....	5.81
"	Joseph R. Clark, Printing, supplies and stationery, January to September, 1906.....	40.88
"	Joseph R. Clark, Printing and supplies for Institutes.....	9.85
Nov. 12.	Clarence H. Ryder, Printing 100 copies of mailing list.....	3.00
Dec. 13.	Sedgwick Post, No. 1, G. A. R., Rent of Hall for Norwich Institute.....	7.00
19.	H. C. C. Miles, Secretary, Institute and office expenses, etc., Sept. 1 to Dec. 1, 1906...	23.51
Dec. 31.	Premiums paid and awarded at 1906 Annual Meeting....	8.50
	George W. Staples.....	\$2.50
	William M. Tyler.....	.50
	George N. Minor ..	.50
	F. B. Miller.....	.50
	J. W. Moss.....	.50
	George F. Platt.....	.50

Dec. 31.	A. B. Cook	\$.50
	Dennis Fenn50
	S. A. Griswold50
	William Hotchkiss50
	H. E. Savage & Sons	1.00
	Charles I. Allen50
"	Premiums paid as awarded at Annual Fruit Exhibition, 1906	\$287.33
	William C. Hale50
	L. L. Lowrey	5.20
	S. G. Cook	5.15
	Mrs. C. A. Stone	19.95
	F. J. Taber	1.00
	W. C. Tanner	1.90
	B. O. Ennis	1.90
	G. C. Comstock50
	G. N. Minor	6.90
	T. H. & L. C. Root	15.50
	C. E. Guild50
	Joseph Albiston	10.90
	Mrs. E. W. Ellison	4 25
	F. B. Williams	2.35
	Dennis Fenn	1.25
	Clifford T. Smith	2.50
	J. E. Andrews	1.50
	H. O. Griswold	9.80
	E. W. Bigelow	1.75
	Greenwood Dearden	1.25
	J. H. Putnam	16.80
	C. H. Savage	29.50
	A. W. Savage	2 00
	Allen B. Cook	3.25
	A. B. Lapsley	4.75
	H. B. Buell	5.45
	J. M. Hubbard	6.35
	S. A. Griswold	1.75
	Mrs. Huber Bushnell	14.00
	A. G. Gulley	13.50
	Gulley & Warren	10.85
	Mrs. F. B. Bailey	20.50
	F. B. Bailey	25.43
	Everett E. Brown	38.65

1907.

Jan. 25.	By Check to Clarence H. Ryder, Programs for Institutes	5.50
"	Milford Postoffice, Stamped envelopes	8.70

Jan. 28.	Professor W. E. Britton, Expenses attending Institutes	\$9.02
"	George V. Smith, Expenses attending Institute..	3.40
Feb. 1.	The Milford Citizen, Printing Institute programs and notices.....	9.00
"	J. H. Putnam, Expenses, Institutes, meetings, etc., September '06-January '07.....	17.76
"	G. G. Tillinghast, Expenses attending Institutes, season 1906.....	26.60
"	H. C. C. Miles, Second payment on salary account, year 1906.....	50.00
		<hr/> \$1,891.16 <hr/>

SUMMARY.

Receipts\$1,891.16

Expenditures.

Premiums 295.33
Miscellaneous expenses 1,595.83

AVAILABLE RESOURCES.

Feb. 1, 1907. Invested funds in Berlin Savings Bank..... \$ 89.45
Due on account State appropriation for year ending September 30th..... 780.64
from which deduct \$214.47 due Treasurer for funds advanced, leaving unexpended balance of State appropriation. 566.17
Showing a net gain of \$32.61 on account of invested fund, and a gain of \$303.70 on account of regular expenditures over last year's report.

SOCIETY'S PERMANENT INVESTED FUND.

Jan. 1, 1906.	Amount on deposit in Berlin Savings Bank.....	\$56.84
Feb. 8, "	Deposited Life membership fee.....	10.00
Jan. 7, 1907.	Deposited Life membership fee.....	10.00
" 1, "	Interest to date.....	2.61
" 16, "	Deposited Life membership fee.....	10.00
		<hr/> \$89.45 <hr/>

AUDITOR'S CERTIFICATE.

HARTFORD, CONN., Feb. 6th, 1907.

We have examined the accounts and vouchers of the Treasurer, Orrin Gilbert, and find them correct.

GEORGE W. STAPLES,
ANDREW KINGSBURY,

Auditing Committee.

Reports of Standing Committees.

Stancliff Hale, chairman, reporting for the Committee on Membership, said that it was important that we build up a large and strong membership for the Society. He urged all present to join, and said the committee would distribute envelopes through the audience with the hope that every one present would put in a dollar and help on the good work of the organization. We want you to become either an annual or life member of our Society.

Report of Committee on Legislation.

MR. J. H. HALE, Chairman: The past year being a non-legislative year nothing has been done by the Legislative Committee. At the present session whatever matters may be acted upon here will be attended to by your committee. The one important thing is some amendment or the entire wiping out of our present Deer law. Two years ago your committee, with the help of other societies, got the law amended so that whatever damages the deer might do was to be paid by the state, but under a decision of the Attorney-General the Treasurer has only paid what the actual loss was to the owner, of planting, labor, etc., not allowing anything for his hope of profits. We are only breeding these deer in our forests that the so-called sportsmen may kill them. Repeal the law and let our boys wipe them out entirely. They will be killed a little later by the huntsmen. There are probably 2,000 deer in our state today; later there may be 10,000, and I would prefer to kill 2,000 than 10,000. When we see them destroying our crops we should have the privilege of killing them. I hope some resolution will be passed at this meeting empowering your Legislative Committee to take that action.

Report of Committee on Exhibitions.

MR. L. C. ROOT, Chairman: Our fall exhibition was held on the grounds of the Horse Shoe Agricultural Association at Willimantic, Sept. 18-20, in connection with their annual fair. The thanks of this society are due to the officers of that association for the very efficient manner in which they provided for

our exhibit, and the great interest they manifested to make it a success. The weather, while fine, embraced two of the hottest days of the season, rendering it difficult to keep the display in good order.

The location of the fair was somewhat out of the center for a majority of our members. This, with the light crop of apples the past season, made the total display somewhat smaller than usual. However, the number of plates of peaches displayed far exceeded that of any previous year.

The entries from some of our generally largest exhibitors were very conspicuous by their total absence. Yet while some of the old timers were not present with their fruit, several new men came in to partially fill the vacancy. To judge from these first efforts, the veterans will have to look sharply to their laurels to hold their lead when these new men get familiar with the business. There were nearly one thousand plates on the tables, embracing the usual variety displayed at our fairs, also a fine show of canned fruits, and an exhibit of fruits in packages which exceeded that of any previous year.

The exhibit as a whole, while not as large as some previous ones, was a revelation to many in the eastern part of the state, who had no idea that such displays could be gathered in Connecticut. It certainly had the effect of interesting many in the work of this society who knew nothing about it before.

Prof. Gulley, living nearby, was able to be on the spot to see to all of the details. He brought with him several of the students of the Agricultural College to assist in arranging and classifying the fruit, which they did with great credit.

To those in charge of these exhibitions, the most satisfactory point is the evident improvement in the quality each year. Marks of insects and diseased spots are less common, while the correctness of names has much improved over the earlier exhibits of this society. We also think the practise of holding these exhibitions in various parts of the state, enabling more people to see them, is the proper course, even if they are sometimes held out of the centers of population and some exhibitors put to additional labor to be present. Others will be brought in and the people of the state as a whole get a better idea of the possibilities of the fruit industry in Connecticut.

The number of invitations that the society receives for its annual exhibit shows the increasing popularity of its work.

The large collection of fruits exhibited by the State Agricultural College deserves special mention. The long table spread with every kind of fruit adapted to this climate gave an opportunity to all interested, to see the results of experiments which could not be carried on by individual growers. Sprayed and unsprayed fruits were placed side by side and many other experiments were put in contrast, showing in every case that the grower who cares for his trees is the one who gets the best results.

Respectfully submitted,

L. C. ROOT,
GEO. H. HALE,
A. G. GULLEY,
Committee.

Report of Committee on New Fruits.

MR. CHAS. I. ALLEN, Chairman: This report will necessarily be very brief, as no new varieties have come to the writer's personal notice during the year, and although we have written to a number of prominent growers throughout the state, we have been unable to learn of only a few new varieties that have fruited in our state during the past season.

Prof. Gulley reports having fruited the following list of peaches sent out by Stark Bros. of Missouri: *Mamie Ross*, *Early Belle*, *Pres. Lyon* and *Alton*. These are all white peaches, of which the *Mamie Ross* seems to be the only one of real value, being large, fine color and ripening about with Mountain Rose.

Stark's Star grape also fruited at the College, but proved too late to ripen in this latitude, although it made very fine bunches.

Prof. Gulley also reports fruiting the *Phoenix Raspberry* in quite a quantity for the first time and considers it very fine as compared with *Cuthbert*. This variety has been fruited quite extensively for a number of years in some sections of the state and seems to be valuable wherever it is tried.

Brother Hale reports fruiting the *Herbert* raspberry for the

first time. It seems to be of the Antwerp class, somewhat larger than the Cuthbert and very much higher in color. It has only wintered here one season, but as it has stood the winters and fruited well in Canada it should do the same here.

Mr. Hale reports fruiting the *Hiley* peach in Connecticut the past season and finds them larger in size and much higher color than in the South, being more rosy red than the Mountain Rose, a third larger and ripening more than a week earlier.

The *Blowers* blackberry was also fruited by Mr. Hale for the first time. It is extremely hardy, fruit almost as large as the Erie and a dozen times sweeter. The *Ward* blackberry is also mentioned as a very large berry of highest quality.

Of the newer strawberries fruited by Mr. Hale he reports the *Ryckman*, *Abington* and *Commonwealth* as the most valuable, while of those fruited for several years *Climax*, *Fairfield* and *Mead* were best.

This brief report covers about all your committee have been able to learn about the behavior of new varieties in our state during the past season, but we doubt not there are many here who have had experience with new varieties which have not come to our notice and we trust these experiences will be brought out at some time during these meetings.

Although it would not be wise for anyone to plant extensively of any new fruit just because they are pictured in glowing colors and the price of the plants would lead one to suppose they were worth several hundred times as much as the old varieties, yet it is necessary and well for the progressive fruit grower to test in a small way the more promising varieties as they come out and thus be able to learn just what varieties are best suited to his soil and market conditions.

The words of scripture seem especially applicable here,—
“Prove all things, hold fast that which is good.”

Report on Fungous Diseases for 1906.

By DR. G. P. CLINTON, New Haven.

The year 1906, like the previous year, was one that brought no very great number of serious fungous troubles to the fruits grown in Connecticut. The weather is such an important

factor in the development of these troubles, once they have become established in a locality, that its character largely determines whether or not they become serious pests. Thus it is that the injury they do varies greatly from year to year. The character, amount, and distribution of moisture is the most important feature of the weather in regulating these fungous outbreaks. If one could intelligently control this feature of the weather for each of the different crops, the greater part of the injury resulting from fungous attacks could be eliminated.

The past year, while in some respects a moist year, was on the whole one well adapted for good plant growth and the character and time of the rains were such as to develop a minimum number and intensity of fungous attacks. June was by far the wettest month, giving an excess of over two inches of rain when compared with the average rainfall of thirty-four years. June, however, more than any other of the growing months, is a time when our crops can stand an excess of rain, so far as fungous troubles are concerned. Excessive moisture at this time, probably is more dangerous to the strawberries than to any other of the fruits. As most of the rain of this month came in violent thunder showers without unusual cloudy or foggy weather, the moisture did little injury to this crop—at least, so far as we learned, there was no general complaint of the rot of the fruit. As regards moisture and the development of fungous troubles, July is a much more critical month than June. The rainfall of the past July was somewhat in excess of the average, but it was so interspersed with bright sunshiny days, instead of cloudy or foggy, that its effect on the crops as a whole was beneficial. While the rain of this month did develop some few troubles that would have become serious with continued moist weather, it so happened that August and September, on the whole, were bright, sunny months with comparatively little wet weather, so that not only the fruits, but other crops as well, escaped some of the most serious fungous troubles that usually do considerable injury during these months.

From year to year we have reported on the various fungous pests that occur on the fruits grown in Connecticut, so that

now there only remains to say in these annual reports what particular troubles have been unusually serious or harmless and to mention the few new troubles that occasionally are called to our attention. The situation, then, for the past year, very briefly presented, was as follows:

Apple. The sooty blotch (*Phyllachora pomigena*) was unusually prominent, and certainly this year was the most serious fungous pest of the apple. From my observations made during the past five years, I am now inclined to give it this rank permanently, for average injury caused. Last fall I found it abundant in all of the small orchards and, especially on the few scattered apple trees that each farmer has,—trees that probably have never been sprayed. During the late fall and early winter, it was almost impossible to find a first-class Greening on the New Haven market, because they were all badly disfigured by this fungus. Later when the cold storage apples appeared there was much less of the fungus in evidence, thus showing that orchards which received attention suffered much less. But even where the trees were sprayed the past year, I understand that the fruit suffered more than usual from the trouble. The black rot or canker (*Sphacopsis malorum*) was another apple fungus that was frequently sent to the Experiment Station for determination. One peculiar case of this trouble combined with winter injury was called to our attention from West Hartford. The severe cold of some previous winter had injured the limbs very unequally so that the growth of the wood made during the following summers had been uneven, resulting in somewhat one-sided swollen places in the branches, often several of those on the same branch. Through the dead twigs on these swellings the black rot fungus had frequently gained entrance and produced cankered areas in the bark.

Grape. There seems to have been more injury from grape rot the past year than for two or three years previously. I understand from Professor Gulley that it required more sprayings than usual to control the rot. We generally lay the blame for grape rot on the black rot fungus (*Guignardia Bidwellii*) and this probably was the chief culprit the past year. However, I did find in some instances that the bitter rot fungus

(*Glomerella Rufomaculans*) was in part responsible. The bitter rot is the fungus that causes so much injury in the orchards of some of the apple growers in southern and central United States. Here in Connecticut it has been found on a number of our pomaceous fruits, but until now had not been reported on the grape. As it does not do much damage on its other hosts in this state, very likely it does not injure the grape so seriously as it would further south. Another grape trouble complained of was the shelling off of the mature berries of certain varieties, especially of the Niagara. This is a trouble that has been attributed to various causes of a non-parasitic nature. There was more or less rot associated with the trouble, but the fungus causing it was not determined. Berries on the ground in time developed the fruiting stage of a fungus (*Macrophoma* sp.) that is usually classified only as a saprophyte. The Concord grapes of cold storage were injured more or less after getting on the market, especially toward the end of their season, by the common blue mold (*Penicillium glaucum*). The most injury was in the baskets where the berries were more or less mashed or cracked by the packing or handling.

Muskmelon. The downy mildew (*Peronoplasmopara Cubensis*) and the leaf mold (*Alternaria Brassicæ* var. *nigrescens*) of the muskmelon were again in evidence in some of the fields, but with less injury than in the past, so that there were at least some Connecticut-grown melons on the market.

Peach. This was an unusual year for the peach in Connecticut, there being a good crop of fair quality that was almost exempt from injury by the brown rot fungus (*Sclerotinia fructigena*) that only the previous year caused such great injury. Some of the earliest varieties suffered, as they will under almost any condition, but even with these the injury was less than usual. The whole explanation lies in the fact that the weather during the harvest was of the right kind—bright and dry.

Raspberry. It is not often we have a conspicuous fungous trouble of a plant and a fair crop from it the same year. Such, however, was partially the case the past year with the raspberry. The yield of this fruit was fair while the quality was unusually good. At the same time the wilt fungus (*Conio-*

thyrium Fuckelii), which has been injuring the raspberries in this state for some years past, was unusually widespread and prominent. For several seasons I have been studying this fungus in a general way, but the past one offered better opportunities, so that a new feature in its development was disclosed. Usually a few of the new canes are killed by the fungus working at their base, when they gradually wilt down as if injured by careless cultivation. Upon the old canes the fungus may form cankered spots girdling the canes and causing wilt of the parts above. Often upon the old or the dead canes the fungus develops more generally, forming its fruiting bodies embedded in the bark and around these the fungus spores are shed out as a copious brown coating. The most serious trouble, however, is with the fruit, as about the time the berries are full grown, but before they begin to ripen, many of the bunches dry up and are worthless. As often there is no sign of the fungus on these fruiting canes I have previously attributed the injury in such cases to an internal attack of the fungus on the parts of the stem near or under the ground. This year on this particular point I found that I was getting the horse before the cart; or, in other words, in such cases the injury came from infection at the top of the cane instead of the base. There is no doubt that bees or other insects crawling over the infected stems coated with spores carry away some of these to the blossoms or the young berries where upon germination they infect these parts. Cases were seen of berries partly green and partly killed by this dry rot. The fungus was present in the dead part but not in the living. Gradually its threads worked throughout the berry, killing the tissue as they went. In time these fungus threads penetrated into the pedicel and even down into stem bearing the bunch of berries. Thus the whole bunch may gradually dry up but remain attached to the stem. So far, no very successful methods have been found to control this trouble. The few spraying experiments that have been tried have not proved very beneficial. Thorough cutting out of the dead and diseased stems in the fall and again in the spring of course is desirable.

Report of Committee on Injurious Insects.

PROF. W. E. BRITTON, Chairman: The chief fact which this committee has to report is the appearance within the state of the dreaded gypsy moth, *Porthetria dispar* Linn. A small area of about one square mile in the town of Stonington is infested. We were unaware of the infestation until March 6th, but began work immediately, and destroyed a number of egg-masses before hatching, and cut and burned considerable brush. But some egg-masses were overlooked, and hatched out about May 1st. Over 10,000 caterpillars were destroyed during June and July. A few egg-masses and adults were later destroyed, but at the present time egg-masses are scarce, and it is believed that comparatively few caterpillars survived to transform. Up to this time there has been expended in the work about \$2,000.00, \$800.00 being furnished by the Board of Agriculture and the remainder being squeezed from the state appropriation made to the Experiment Station for insect work. A small force of men has been kept at work in Stonington since November 16th scouting for egg-masses, cutting and burning brush, pruning and scraping trees, and improving the conditions for carrying on the campaign next year. With money for the work, we believe that the pest can be exterminated from this locality, and it will be economy for the state to expend a few thousands now rather than hundreds of thousands later, as has been the case in Massachusetts. So far, the pest has attacked apple trees chiefly at Stonington, but where abundant, it devours all kinds of vegetation. This pest may, of course, appear at any time in any other part of the state.

The San José scale, like the poor, is always with us. The winter being exceedingly mild, few scales winter-killed, and consequently the species has multiplied rather faster than usual during the summer and fall. More spraying is being done than ever before. In the large orchards the lime-sulphur mixture is still used, and is undoubtedly the best treatment for pear and peach orchards in Connecticut. The so-called "soluble oils" have been given a trial in our experiments in different parts of the state, with fairly satisfactory results. The fact that these preparations do not discolor trees, buildings or fences

and are so easy to handle makes them especially valuable for use in small quantities in the home garden, nursery, parks or ornamental plantings, and in the city back yards. The lime-sulphur mixture is considerably less expensive than "soluble oils" when used on a large scale in commercial orchards, and has so much value in destroying the pear psylla and as a fungicide that it seems best to continue using it. The "soluble oils" probably do not possess much value as a fungicide, and we hesitate to recommend them for general use in Connecticut because there may later develop a cumulative injury to trees if sprayed with these mixtures year after year. Mr. E. M. Ives of Meriden has used "Scalecide," spraying most of his trees in the spring, and giving another treatment in November. From an examination of these trees, the results seem to be about the same as if sprayed with the lime-sulphur mixture, but the trees need spraying again in the spring. If sprayed in the fall and again the following spring, an examination before the beginning of the breeding season would show much better results. Young scales establish themselves on the bark more readily, and the tree becomes badly infested sooner, than where lime and sulphur mixture is used. The great need of thorough and persistent work in spraying for this insect cannot be emphasized too often or too strongly.

Every farmer or land owner should cut all wild fruit trees in the fields, pastures or roadsides; for the scale will breed and multiply just as well in such places as in the orchard, and they furnish a constant source of infection. All other trees should be sprayed. Each member of this Society should destroy every scrub fruit tree on his place if he is not willing to take care of it.

In the annual inspection of Connecticut nurseries in the fall of 1906 we found more scale than usual, and it was necessary to destroy considerable stock. In the future it will be necessary for nurserymen to grow stock just as quickly as possible, and to spray it each winter or spring until sold. All buds, cions and cuttings should be fumigated before setting. Each nurseryman should grow less stock and give it more attention.

The apple aphid (*Aphis pomi* DeGeer) was abundant, and

did much damage to newly set orchard trees, and checked the growth of nursery stock. Some of our growers practiced dipping the infested shoots in a liquid of soap and water or kerosene emulsion, with good results.

The apple leaf miner (*Tischeria malifoliella* Clem.) did considerable damage in the eastern part of the state. A sawfly larva defoliated many peach trees in the orchard of Barnes Brothers at Yalesville in June. This insect is closely allied to the currant worm, and proved to be a new species of the genus *Lyda*. We cannot foretell whether it will be a serious enemy or not, but as we cannot safely spray peach foliage in Connecticut, some other remedy must be sought, and frequent cultivation about July 1st, at the time the larvæ go into the soil to transform, will doubtless kill many of them. Possibly spraying the ground at this time with kerosene emulsion may prove effectual.

The larva of another sawfly, *Strongylogaster pinguis* Nort., was rather common on the leaves of cherry, where it eats off the green portion in much the same manner as the common pear slug, which is also a pest of cherry.

We must report the usual injury from codling moth, apple maggot, plum curculio, rose chafer and apple tent caterpillar.

Respectfully submitted,

W. E. BRITTON, NEW HAVEN.

F. N. PLATT, MILFORD,

E. M. IVES, MERIDEN.

A number of questions followed which were answered by Prof. Britton.

Report of Committee on Markets and Transportation.

MR. J. N. BARNES, Chairman: The Committee on Markets and Transportation has very little to report of action taken. There has been plenty of people ready to buy our fruit at good prices almost at our doors.

The Connecticut fruit grower of 1906 should be happy, if crops of good volume and excellent quality, meeting a ready sale, help to make that most desirable condition. The best place to sell our fruit appears to have been in our local markets,

although much was sent to Providence, R. I., Boston, Mass., as well as other places outside the state at good prices.

Quite a large per cent. of the peach crop appears to have been sold to buyers, delivered on car at shipping point, and so far as I know, such disposal was quite satisfactory to the grower, thus eliminating all marketing risks from the price received.

The weather conditions were very favorable last season for maturing and making the peach crop at its best, and no doubt this contributed largely to the very successful marketing of same.

Your committee, and others interested, met the officials of the railroad company in New Haven in July and estimates were made of size of growing crop of fruit, number of cars wanted for moving same and various other matters considered and arranged for to the apparent satisfaction of all parties.

The size of crop appears to have been smaller than several of preceding years' crops, but in quality and selling value very much better than those crops. Our nearby markets many times being our best markets, your committee feel that they are not out of place in again urging (as last year) the importance of main or trunk line roads between our various market places, thus tending to make them *as one market* to be reached direct from our orchards by our own conveyance, thus ensuring the arrival of our fruit products in the best of order and appearance.

There are many problems connected with the fruit grower's business that very properly might be given attention by this committee, but the season's favorable marketing conditions, as well as the press of other business, has prevented their consideration, thus leaving them to a succeeding year and committee for consideration.

Upon motion of J. H. Hale, seconded by Prof. Gulley, it was voted to accept the foregoing committee reports and print same in the proceedings.

At this point Mr. Jas. L. Cowles, Secretary of the Postal

Progress League, was permitted to address the convention on the subject of postal reform and the need of establishing a parcels post system.

On motion of Mr. Hale the following resolutions were adopted by the Society:

Resolved, That the 59th U. S. Congress is hereby respectfully requested to immediately enact into law H. R. 4549, providing for the consolidation of 3rd and 4th class mail matter at the 3rd class rate, one cent per each two ounces.

Resolved, That the 59th U. S. Congress is hereby respectfully requested to appropriate at least \$50,000 for the establishment and operation, for the year beginning July 1st, 1907, of an Experimental Local Rural Post, that shall do the general transport business of the different routes at reasonable rates.

Resolved, That a copy of this resolution be forwarded to each of the Representatives of this State in the U. S. Senate and House of Representatives. Also to Hon. Jesse Overstreet, Chairman U. S. House of Representatives, Postal Committee, and to Hon. Boise Penrose, Chairman Senate Postal Committee.

The first address on the morning's program, "The Value of Color in Fruit," was then given, and being handled by so well known an expert as Mr. Hale, the subject was of great interest to all present.

The Value of Color in Fruit and How to Get It.

By J. H. HALE, South Glastonbury.

There are two color values in fruit. One is a real value that comes through a high bright color, and that is the greatest value to the grower for his own family use; there is also a market value in color and it is of tremendous value.

The highest colored fruit of any variety in any particular locality where that variety may grow has the best flavor of that particular variety grown in that particular locality. The highest colored specimens upon the whole are the best specimens of that particular variety in a particular locality. Not that the highest colored fruit of a particular variety, no matter

where it is grown, would be better than one of less color grown in another locality.

The soil and other conditions have much to do with the flavor. The color is always to be taken into consideration when we select fruit for our family use. But the money value of color is very great, and it doesn't matter much where that color comes from. The bright color catches the eye—and you who grow fruit for sale all know that we have first to catch the eye before we can catch the pocketbook. Color in fruit catches the eye on the stand or in wholesale market and attracts attention, and that is the secret of all good advertising—attract attention. The color in fruit is the best advertisement that a fruit grower can have. High colored fruit of inferior quality sells quicker and at higher prices upon the whole than does poorly colored fruit of higher quality, except to the few customers who are "on to the job" and know what constitutes quality in fruit.

High color in fruit has an enormous value in cash and is not to be lost sight of by any commercial fruit grower. If you analyze it upon a percentage basis you will find that color will add from 25 to 40 per cent. to the selling value.

Regarding peaches, the same result will follow the growing of a highly colored peach of perhaps inferior quality. They sell better than a poorly colored peach of more excellent quality. Color is usually an indication of quality. You take the Old-Mixon peach; sometimes it is very pale, but when you get a highly colored one it is one of the best on earth. The Elberta peach is abominably poor, but if you get a bright colored one you may expect to get a better quality than where you get one with the ordinary blush.

This color value cannot be fully measured in dollars and cents, but it is an enormous value. The question is how to get this color.

The first thing is clear air and sunshine. The reason we get less apples (our standard fruit) of high color is lack of clear air and sunshine, as so many of our Connecticut apples are grown on valley lowlands.

Take the United States as a whole, and we find in the arid regions of the Rocky Mountain country even down to the

Mexican borders the standard varieties of fruit take on the highest colors of anywhere in this country. The soil conditions are such that they get an inferior quality of fruit, but the coloring is wonderfully attractive. If they had the soil that we have, they would get the quality also, but they get the color without the quality; their fruit also lacks flavor, yet is now selling at top prices in our market because it has high color.

Taking that as a guide and coming back to Connecticut where the soil conditions are ideal for quality and where the most perfect qualities can be grown, all we need, is to do just as the 121st Psalm tells us: "I will lift up my eyes unto the hills from whence cometh my help." That is the place,—lift up your eyes to the hills of New England, that is where the help comes from; there you have the bright, clear air and sunshine. We go to the hills to get our color and color is valuable, the most valuable asset in fruit; then there is the even temperature that goes for high coloring; there we get the most nearly perfect air drainage and the most nearly perfect water drainage and most perfect conditions generally for high color in our fruit. Then on our hills most of our trees do not grow as luxuriantly as in the valleys; there is not a surplus of wood or foliage. The most highly colored fruit does not come from the luxuriant growing tree, we never get as highly colored fruit from the big lusty trees in the valley or on the plains as we do from the moderately grown tree; not the over-vigorous tree, of the hills. Our New England hills are filled with granite and potash; there is something in the stone that the apples and peaches like; we get color from stony land; the rocky hilltops give us our highest colored fruit.

These are, in brief, the natural conditions that tend to increase the color in fruit.

Then, what are the artificial aids? What may we do further to aid the natural conditions? Use moderately thin lands; our very strongest and most fertile lands grow our largest and best trees, but these trees bear fruit destitute of high color; we need moderately thin land; you need land that the orchardist may have under his control, but not land that you can't raise an umbrella on, but land that is moderately

lacking in fertility will give us quality, give us highly colored fruit; we will have a slower growing tree and can control its growth. We need a moderate amount of nitrogen in the land; we need some heavy applications of potash, and if you would have it in the ideal form, use hard wood ashes. You need a healthy growth but not excessive foliage. In short, if you can control tree growth you can do much to regulate the color of your fruit. We also want the open headed trees, which we get by proper pruning, so the sunlight and the air may get in and through and all over the trees; the broad open headed trees that the sunlight may benefit. Then there is the early cultivation, the first two or three months in the summer and a cessation of it in July. That tends to give color, while later cultivation stimulates a too heavy foliage growth that retards the development of color.

Many say they get their highest color from trees grown in sod land where the hay is grown and cut and carted away, but it reduces the quantity so much the gain on color value wouldn't offset the loss of quantity in the fruit, but that is one of the ways you may get it, if you can't get it without employing such means. But as there are other things besides color value to be thought of, the haying of orchards is not to be recommended. Spraying with Bordeaux mixture gives a clear skin, and if you have too much foliage you may even make the mixture stronger and as a result lose some of the foliage. I am not recommending this procedure, however.

In regard to the trees that defoliate themselves,—and with us about 75 per cent. of our peach trees of one variety did it,—the color was especially fine, but the quality was inferior—that color had been brought about by artificial conditions, too strenuous to be of commercial value. In small fruits color is just as important, the berries of a bright color attract attention and they will sell much more readily and the fruit is also much more firm. A bright colored strawberry is firmer than a pale berry of the same variety. You can get the bright color by excessive potash feeding; and then, too, you must thin your plants. Most strawberry plants in matted beds are ten times too thickly grown, and it is impossible to get a good bright color under those conditions. They should be grown in hills or thin rows, plants 8 or 10 inches apart in matted rows.

The same rule holds good in raspberries. Let in the sunlight and the air. The secret of this whole color business is just this,—utilize the sunlight and the air, and you *can't* get color without these elements, and you *can* get the color necessary with them by doing the other necessary things. Knowing this, is a valuable help in fruit growing. We are all eager for a little more money, so we crowd the plants and trees a little more closely. That method is all wrong. We plant closely and then we lack the color that brings us the dollars, and so we don't get the dollars, after all. Hilltops, wide-apart planting, open head trees, planted far apart, light soils, plenty of potash and all the sunshine you can get are the essential elements of color-making.

DISCUSSION.

A MEMBER: Artificial defoliation of the tree by spraying weakens the vitality, doesn't it?

MR. HALE: Certainly, and I do not recommend it.

MR. CALLAHAN: Wouldn't heavy spraying with lime and sulphur prevent the rusty appearance?

MR. HALE: I think so, but you must ask the scientific fellow.

MR. IVES: Regarding fine spraying, don't we put more on our trees than we ought to; more than we know we are putting on?

DR. CLINTON: The season may have something to do with the rusting of the apples; the skin of some varieties of apples is more susceptible to the trouble and will show it decidedly. Spraying should be done evenly and thoroughly and care taken in the preparation of the mixture used.

MR. PLATT: In the Rocky Mountain districts the apple growers keep the trees covered with Bordeaux mixture the whole season. With an arid climate, of course, the conditions are entirely different.

MR. ELLSWORTH: Last year just before harvesting time we had a season of exceedingly bright sunshine and our apples colored up two weeks earlier than ever before.

The Secretary here presented the following communication regarding the appropriation by Congress for the Biological Survey of the U. S. Department of Agriculture:

"The Congressional Committee on Agriculture refuses the annual appropriation for the Biological Survey of the United States Department of Agriculture. This survey is of the greatest value to the farmers of the country. The economic work that it has done in studying the food habits of birds and demonstrating their usefulness has no parallel anywhere in the world. Most of our exact knowledge of the value of birds to the farmer has come from the investigations of this survey. The results of its work under the "Lacey Act" in protecting from extermination the game birds and animals are excellent.

The survey publishes and distributes farmers' bulletins giving information regarding what birds and animals are useful and injurious and suggesting means of protecting crops. Also bulletins regarding the distribution and migration of American game birds. It enforces the interstate laws against illegal killing and shipment of game. It has established a quarantine against the importation of injurious animals and birds. Had this survey been in existence forty years ago it would have prevented the introduction of the English sparrow. It has kept out the destructive mongoose and many other pernicious creatures.

If this appropriation is not granted the country will have no protection against the importation of many foreign pests. The legal restrictions which now operate to prevent the extermination of certain wild fowl and game birds cannot be enforced, and a vast amount of manuscript regarding the utility of birds, their protection, etc., which is being prepared for publication for the benefit of the farmers of this country will never be published and much of the labor of years will be lost."

PROFESSOR BRITTON: I wish to say regarding this matter that the appropriation for this division or bureau has simply been dropped and largely through the efforts of Wadsworth, chairman of the Committee on Agriculture, who was defeated at the last election. We all know what valuable work has been done by that Division and I see no particular reason why this Bureau should be dropped any more than any other at Washington, and I hope this association will use its influence to prevent it.

I would move the adoption of a resolution urging upon Congress the reconsideration of this matter and requesting that the appropriation for the Biological Survey be replaced.

Motion was seconded and upon vote was unanimously passed.

Just before the close of the morning session President Eddy announced the appointment of the following special committees to act during the meeting:

Committee to Judge the Exhibit of Fruit—Orlando Harrison, of Berlin, Md.; H. D. Lewis, of Red Hook, N. Y.

Committee on Exhibition of Implements—Charles I. Allen, Terryville; W. F. Platt, Milford; E. Rogers, Southington.

At 12:10 a recess was taken until the afternoon session.

AFTERNOON SESSION.

The second session of the meeting was called to order promptly at 1:30 by President Eddy. A very large audience was present at this session, nearly every seat in the hall being filled.

The large number of fruit growers present gave close attention to the many practical addresses, the list of splendid speakers, each a specialist in his line, having never been equalled at a previous meeting of the society.

PROF. GULLEY: Mr. President, to expedite the election of officers tomorrow, I make a motion that the President appoint at this time a committee of eight as a nominating committee.

Mr. J. H. Hale moved an amendment that the committee be appointed by the house. This was accepted, and the motion as amended was then passed. The following committee was chosen:

J. H. Hale, for Hartford County.

N. S. Platt, for New Haven County.

Charles L. Gold, for Litchfield County.

Clarence H. Savage, for Tolland County.

E. E. Brown, for Windham County.

Charles E. Lyman, for Middlesex County.

S. M. Foster, for Fairfield County.

C. A. Gray, for New London County.

The President then introduced Mr. C. D. Jarvis, of the Storrs Experiment Station, who delivered the first address of the afternoon, on "The Value of an Orchard Survey," illustrating the subject by means of numerous charts.

The Valuation of an Orchard Survey.

By C. D. JARVIS, STORRS.

About three years ago the Agricultural Experiment Station of Cornell University undertook to make a survey or "census" of certain fruit-growing sections of western New York state. Wayne County, situated on the south shore of Lake Ontario, was the first to receive attention. In 1904 Orleans County and in 1905 Niagara County were similarly treated. In the work of the latter county, in which both apple and peach orchards were studied, it was the writer's privilege to share.

Many agricultural problems may be investigated at the experiment stations under the direct observation of the investigator, but there are other broader problems which can not be so investigated. One of these far-reaching problems is the determination of the status of the fruit-growing industry in a certain section of the country. We want to know if fruit growing offers better opportunities in a given locality than dairying, stock raising, or other special lines of agriculture; or if certain combinations of these industries are more profitable. The problem is not solved by citing a success here and a failure there. The only way is to get at the aggregate. But this is only a beginning of the solution of the great problem. We must determine the underlying causes of successes and failures. The purposes of an orchard survey, then, may be summed up as follows:

1. "To correlate geologic and soil characters with orchard conditions.
2. "To compare successes and failures, and ascertain underlying causes.
3. "To investigate methods of orchard management and determine the influence of each.

4. "Finally and in short, to collect and tabulate such a mass of data upon practical fruit growing as will place many moot questions beyond the range of peradventure. . . . " *

A shrewd business man, before investing his money in any business will make inquiry in regard to supply and demand. While it is true that large quantities of fruit are annually exported it is chiefly to the home market that we must look for the future of the fruit industry. In no country in the world is there such a demand for fresh fruit. Fruit in most countries is considered a luxury and is only eaten by people of means. In America this is not the case. Here fruit has come to be a necessity and the great fruit market of the world is the American workingman. We need only to look to census reports to realize the growing demand for fresh fruit. The value of orchard fruits have increased from 33 cents per capita in 1850 to \$1.11 per capita in 1900. If the small fruits were included the value would be very much higher. We must make allowance, however, for the fact that a larger proportion of the fruit is now exported than in 1850. The demand is increasing more rapidly than fruit trees are being planted. I merely mention this is passing that you may see that the fruit business is a safe proposition as far as supply and demand are concerned.

HOW THE WORK IS CONDUCTED.

One or more inspectors are sent into the field equipped with soil augers, cameras, and specially prepared note books for collecting information regarding age, fertilization, tillage, spraying, past and present troubles, yields, markets, prices, etc. Each inspector makes a close examination of the soil and takes observations on the site, aspect, and general conditions of the orchard. Every orchard of five acres or more in a given area is examined. As the reports come in from the inspectors they are carefully classified—tilled or untilled, pastured or not pastured, sprayed or not sprayed, etc. By pitting all the orchards managed in one way against all the orchards managed in some other way, fairly reliable conclusions may be drawn. (See sample report.)

* John, Craig, Cornell Exp. Sta. Bul. 266, p. 231 (1905).

A SAMPLE REPORT.

APPLES.	ORCHARD SURVEY.	1903.	
		No. (Omitted.)	Wayne County.
		Soil. (2 nd)	
		8-1	

Proprietor (Omitted)
 Location (Omitted.)
 Site (Elevated.)

(Owner 10 yrs.) * P. O. (Omitted.)
 When planted (1866)

Aspect (Slight E.)
 Drainage (No drains. Eleven acres fair, natural. One acre trees drowned out.)

Varieties (One-half Baldwin : one-fourth Greening : one-fourth Roxbury Russett.)
 How cared for (Entirely neglected and cattle pasture till 10 years ago. Tilled 9 years)

Pruning (Formerly neglected and 6-inch stubs left. Now well pruned every other year.)
 Fertilizer used (About 100 loads of barnyard manure 9 years ago. Buckwheat plowed under nearly every year.)

Present Treatment : (Tilled. A cover crop of buckwheat to be plowed under.) Sprayed (Ordinarily, but not this year.)

Troubles : Past (Trees were badly infested with canker.)
 Present (Codling-moth bad. Considerable scab. Few aphids, canker, bucculatrix, leaf-sewer.)

Present condition : Crop (Good.)

Health (Good.)

Thrift (Fair.)

1900 1901 1902 1903 12 Acres

Yield, bushels..... 3,000 2,050 3,050

Market and price { Sold to dry, 14 cents. Sold to dry, 25 cents. Sold to dry, 20 cents.

Income per acre..... \$ 35.00 \$ 42.70 \$ 50.85

Has orchard been profitable? (Yes. Has paid nearly every year for 8 years.)

General observations : (This orchard was considered worthless 10 years ago, the neglect and canker having nearly ruined the trees.

The canker is now nearly subdued and the trees are in fair shape, but are much too close together. The owner thinks of removing

half of them. He is trying to keep up the orchard with cover crops and no fertilizer. Some manure or fertilizer would pay as

the trees need a little more vigor. When the present owner [over.]

* Refers to a description of this type. This number refers to the Miami stony loam. Observer (G. F. Warren.)

SOME IMPORTANT REVELATIONS.

Influence of tillage. The question is often asked, "Does tillage pay?" The modern, progressive fruit grower will unhesitatingly answer "Yes," but there are hundreds of prosperous apple growers in Wayne County, New York, who are not so sure about the matter. They have been growing thousands of bushels of apples every year at small expense and have found it profitable. They are supporting a great industry—the evaporating industry. Many farmers have evaporators on their farms and others supply concerns in the nearest village. The following table shows the results from different methods of soil treatment.

FIVE-YEAR AVERAGE PER ACRE. ALL ORCHARDS.*

	Bushels.	Income.
Tilled ten years or more.....	327	\$182.00
Tilled five years or more.....	274	138.00
Tilled over half of preceding five years.....	225	113.00
Sod over half of preceding five years.....	222	107.00
Sod five years or more.....	204	108.00
Sod ten years or more.....	176	87.00

It will be seen from this that the five-year average for tilled orchards is 86 per cent. more than that from the untilled orchards. A part of this great difference may be due to other factors, for as a rule, a man who tills his orchard takes better care of it in other ways. The following table shows the five-year average of tilled and untilled orchards similarly cared for:

FIVE-YEAR AVERAGE PER ACRE. ONLY WELL CARED FOR ORCHARDS.

	Bushels.	Income.
Tilled ten years or more.....	337	\$187.00
Tilled five years or more.....	296	148.00
Tilled over half of preceding five years.....	234	121.00
Sod over half of preceding five years.....	242	118.00
Sod five years or more.....	258	134.00
Sod ten years or more.....	232	117.00

The average yield of tilled orchards is still 45 per cent. more than for sod orchards. This does not necessarily mean that all orchards should be tilled, but that under ordinary

* All tables in this paper are after Warren, Cornell Exp. Sta. Bul. 229.

conditions tilled orchards are more productive than those in sod.

Influence of spraying. The following table shows that orchards sprayed three times gave 31 per cent. larger yield and 51 per cent larger income per acre than those not sprayed.

SPRAYING AND YIELD AND INCOME PER ACRE, 1904.

	Yield.		Per ct of		Income.	
	No. of		Avg. crop bar-	relled.	No. of	Avg.
How sprayed.	orchards.	Acres.	yield.	orchards.	Acres.	income.
Unsprayed,	100	917½	245	71	94	861½
Sprayed once,	49	504	307	71	46	468
Sprayed twice,	90	921½	343	75	84	864½
Sprayed 3 times,	40	426	322	83	37	406
Sprayed 4 times,	6	43	569	77	6	43
						211.00

Methods of sod treatment. As shown by the following table sod orchards pastured with sheep and hogs give much better yields than those not pastured and better also than those pastured with cattle.

THREE-YEAR AVERAGE PER ACRE:

Pastured with hogs.....	312 bushels
" " sheep.....	308 "
" " cattle.....	153 "
Not pastured.....	217 "

The very low average of those orchards pastured with cattle is partially accounted for by the fact that cattle are only allowed to run in badly neglected orchards. The value of hogs in an orchard is more dependent upon the amount of rooting they do rather than upon the amount of manure they contribute.

How far apart should trees be planted? Many fruit growers now realize that their trees are too close together. They know that sunlight is essential to the production of highly colored fruit, that they require room for spraying and harvesting operations, and that the lower branches of crowded trees soon die, resulting in a tall long-armed tree. Many growers have taken out every alternate row and after two or three years have secured more fruit than before. The fol-

lowing table shows the yields of apple orchards planted at varying distances:

FOUR-YEAR AVERAGE.

Not over 30 x 30 feet.....	186 bushels
31 x 31 to 35 x 35 feet.....	222 "
36 x 36 to 40 x 40 feet.....	229 "

It is plainly evident that the greatest enemy of the apple orchard is the apple tree.

Time will not permit the mention of many other revelations of an orchard survey. It is not supposed that an orchard survey will disclose any new principles, but it serves the purpose, as previously mentioned of bringing together such a mass of data pertaining to the management of orchards and disposing of the product, that none can dispute its teachings. It is interesting to note that the revelations of an orchard survey are in direct accord with the practice of the best fruit growers.

DISCUSSION.

A MEMBER: Were those trees of the same age?

MR. JARVIS: They were trees planted before 1860.

A MEMBER: In regard to the buckwheat cover crop, at what time is it sown, what the future treatment, and is it gathered in any way?

MR. JARVIS: When used as a cover crop it should be sown about the first of July and there will be a good crop by the time the frost comes; leave it on the ground all winter and plow under in the spring; in the fall it forms a nice mat for the apples to fall upon, although it is badly trampled down in the harvesting of the fruit. It is usually in seed at the time of harvesting the fruit.

A MEMBER: Is there any trouble with vermin or mice?

MR. JARVIS: There may be, but we have experienced very little trouble from leaving the buckwheat on the ground; as a rule, very little grows around the base of the trees so there is little danger from mice working around the trees. If one has such trouble it is an easy matter to work around the trees in the fall and keep the buckwheat away from the trunks.

A MEMBER: Is there any better treatment, that gives better results, than the pasturing with cows?

MR. JARVIS: Tillage is far better.

A MEMBER: Take it in the case of tillage and where would the profits be?

MR. JARVIS: That has been figured out and it is shown conclusively that the extra income would more than pay for the cost of tillage, more than twice pay for the cost of tillage; that is one of the most conclusive things in our orchard survey work.

PRESIDENT EDDY: I take great pleasure in introducing the next speaker, who has come to us from a distant state and who is well known as a very successful grower of fancy apples and who has been given the title of the "Rome Beauty man." I am sure we shall all profit by Mr. Cox's address:

How I Grow Fancy Apples for Market.

By U. T. Cox, Rockwood, Ohio, President of the Ohio State Horticultural Society.

Mr. President and Fellow Fruit Growers of Connecticut and Ladies and Gentlemen:—

I am glad to be with you. When the Secretary asked me to come and talk to you I didn't know any better than to accept and I am here, but a little the worse for the trip and the weather. I feel an interest in Connecticut, as my grandmother was born here in Hartford in 1799, and her family and some other relatives migrated to New York soon afterward and then later went across to Marietta, Ohio, and in the fall of 1816 they moved farther down the Ohio River to Lawrence County, O., near Proctorville and not far from Huntington, W. Va. Little did your Secretary dream that my success could be attributed to these same pioneers who went out from Connecticut, but such is the case. That famous Rome Beauty apple that I am accused of growing so many of, had its origin through the work of these same people and that of another New England pioneer in the person of Gen. Rufus Putnam. He settled at

Marietta, Ohio, and started a nursery and the Gillette family took home a supply of trees down to Lawrence County in the fall of 1816 and set them out the next spring.

Rufus Putnam in pruning his trees overlooked or neglected to cut off a sprout that had come out below the graft or from the root of one of the trees and when Joel Gillett bought those trees and took them to Marietta, Ohio, in 1817, he cut that sprout off and gave it to his son Manson, saying, "Here's a democrat, you can have that." His son took it and set it out, and it grew to maturity and produced fine apples and was called Gillett's seedling. It was soon after changed to Rome Beauty, being named about 1832-1835, and it grew about 8 miles from where I live. Soon after the gold fever of 1850 another one of the Gillets carried this apple to Oregon, and that is how it got into that part of the country.

To go back a little, the Putnams that settled in Marietta, Ohio, took a homeless boy in 1804 and got acquainted with the Gillett family and when they went down the river in the fall of 1816, that was too much for the boy and he went down in the spring of 1817, 175 miles in a canoe, to see the girl, afterwards there was a wedding and they settled in the rich Ohio River bottom,—that was my grandfather and grandmother; they had pretty good success. My father grew up across the river in West Virginia; one of mother's brothers went out on to the hills and took up some government land, in 1847, set out a little orchard, probably got tired of working there and went further west; his father bought that land and gave it to my father and mother and in 1854 they went there to make a living. They toiled along pretty successfully and in a few years the trees that my uncle had set out began to bear and they had pretty nice apples. My father took it into his head that he was going into the apple business and set out 60 acres about 1860. From that he gradually increased his orchards. The people made fun of him, saying that he couldn't pick so many and if he got them picked he couldn't sell them nor use them. The apples were picked and were taken down the river in flat boats and he did pretty well with them; there were not enough people right where he lived to use the apples, but the people were down the river and there the apples went and found a

market. That is the way I happened to be in the fruit business and I don't know what else I could get into to make a better living. When my father first commenced setting these orchards, he plowed the ground and then sowed it to wheat and grass and clover and the trees went on bearing every other year, bearing themselves to death. They are all gone now except a few trees. We can't make the Rome Beauty trees live as you can make your Baldwins live here in Connecticut, but they do the work while they do live. In a few years the soil in some of these orchards began to wash considerably and we began to learn that it would not pay to cultivate the land. The only thing I could see to do was to mow the grass and leave it on the ground. I consider it worth more to feed to the trees than to feed stock.

I came here to talk about the mulch system; some may be opposed to it under certain conditions, but if I had not used it I would have made a failure of my business.

In 1890 the Ohio experiment station decided to make some tests in spraying to keep off the apple scab. Prof. Green came down to our place, and we had crude instruments to be sure, but he made some tests and it proved conclusively that we could keep off the scab and codling moth also. We sprayed with a mixture as follows: 4 pounds of blue vitriol; 4 pounds of lime; 4 ounces of Paris Green to 50 gallons of water. It didn't hurt the foliage and we went on for a few years with it; then we tried arsenite of soda and later arsenate of lead, but there was too much cost in the latter; then I conceived the idea we would put half strength of arsenate of lead and arsenite of soda and we had better success than ever before. And I have been using that mixture that strength ever since with very good success, and the best success this year we ever had.

I have cut the amount of arsenate of lead from three pounds down to one and a half pounds to 50 gallons of water and to one pound in some cases; I never recommended over four pounds of blue vitriol; I used three pounds last year and five pounds of lime. The New York fellows used to recommend six pounds of blue vitriol and six pounds of lime but lately they have decided to cut down the blue vitriol to three

pounds, and I believe two pounds will do as effective work and I think you will find it will not rust the fruit so much; if you keep this mixture well stirred you will find it will not burn your foliage. There are some things on the market that will burn the foliage; the person using spraying mixtures must know his business; he must know the conditions; he can't take somebody's else advice and succeed unless he knows something about the conditions. If a man tells him how to do the work he should not commence until he thoroughly understands it. After studying it he is more apt to succeed.

QUESTION: Is there anything about the blue vitriol that is poisonous to animals when used for spraying?

MR. COX: I have a friend up in Michigan who had an old horse 25 years old that he wanted to get rid of; he had turned it out to pasture in the orchard where he had been spraying the trees, thinking possibly that might do the work, but instead of killing the old horse he said it continued to grow fat and flourished on it right along.

QUESTION: How many gallons of water do you use to three pounds of vitriol?

MR. COX: 50 gallons.

QUESTION: How much lime do you recommend with the blue vitriol?

MR. COX: We have always used five pounds of lime and I think that is better than three pounds.

The Ohio experiment station made some tests in my orchards last year for codling moth with the following results:

TESTS FOR CODLING MOTH IN ORCHARD OF U. T. COX, 1906.

	Fallen Fruit.		No. of Tree.	Picked Fruit.	
	Wormy.	Not Wormy.		Wormy.	Not Wormy.
Plot 1		16	1		409
	1	37	2	1	1807
Arsenate of		29	3		853
lead		50	4		716
3 lbs. to 50 gal. water		30	5		216
		6	6		198
	1	13	7	2	302
			8		281
Plot 3			9		1014
		17	10		394
Disparenc		55	11		1059

3 lbs. to 50		42	12	1	1168
	1	1	13	1	923
		6	11		137
		23	15	8	1190
		61	15		680
	1	114	16		449
Plot 4	1	2	17	7	894
	4	104	18		865
Arsenite of Soda.	1	14	19	5	392
1 lb. arsenic boiled		45	20	4	665
with sal soda)	1	39	21	4	752
to 200 gal.		17	22	4	723
Plot 5	1	27	23		766
	1	25	24	3	2235
Paris Green	5	129	25	2	1689
1 lb. to 140 gal.	1	88	26	6	1751
			27	1	319
Plot 6			28-29 mixed	1	593
			31		240
Disparenc		31	32		688
3 lbs. to 50 gal.		24	33		180
	2	4	34	1	136
		35	35		355
		2	36		79
	1	22	37		964
Half strength ars.		62	38		1161
of lead & ars. soda		85	39		1518
Sprayed before	20	44	Check 30	17	1623
blooming	1	34	Check	18	970

Bordeaux was used with all insecticides and all sprayed before bloom. Dates of application after bloom fell, May 4-5, 17-18, June 30, July 20. Part of them not sprayed but three times, color of fruit better where sprayed four times, showing that more spraying is needed for fungi than codling moth in this case. Fruit picked October 2-3. No drops picked up till fruit was picked.

QUESTION: How many times do you spray in a season?

MR. COX: Four times after the bloom falls and once before.

Our land is all in sod, the grass is mowed and left on the ground; I am never troubled with vermin, unless it is mice occasionally; when the apple scab began to trouble, we took special pains in spraying; we have so many banks and hills in our orchards they are not as easy to get around on as are your more level orchard lands, so we had to take special pains to cover the whole of the trees, from top to bottom. Everybody said we were putting too much on our trees, but our idea is that the man who puts on as little as he can in spraying does

not get good results? It is better to spray late in the season, also, as in that way you will get a good clear color on your fruit and it also keeps your foliage healthy, as well as catching the second brood of codling moth.

QUESTION: How late do you last spray?

MR. COX: We begin about July 20th and do not usually finish until the first of August.

QUESTION: Is there danger in over-spraying?

MR. COX: There is no danger in over-spraying if you don't have the chemicals too strong in the mixture.

QUESTION: You would not spray where you were going to cut the hay to feed to stock, would you?

MR. COX: I would not cut it as a feed, but if I did I would not be afraid to do so. There is no danger to stock.

QUESTION: Does the foliage look blue when you get ready to harvest the crop?

MR. COX: Yes, sir. And in Southern Ohio the man who sprays will not be troubled with bitter rot. One of our trees on a hillside was so situated our hose was not long enough to reach all around it; we sprayed one side and the other we could not get at. On the side we sprayed thoroughly the foliage was healthy, the fruit fully developed and was free from bitter rot; the other side was covered with apple scab, had the bitter rot and the foliage and the fruit fell off. That, you see, is the difference when you spray and when you do not. And then, too, the side we sprayed was toward the north and the side we didn't spray was toward the south. Nothing but the spraying would save that tree from fungous diseases. We have no trouble at all with the codling moth any more, neither the canker worms nor curculio because we spray so thoroughly and kill them all, practically.

The people in the United States having old orchards do not spray as a general thing; some do but not thoroughly enough. Some go into an orchard and spray a little, just about a third enough and promise to come back in a week and then forget all about their promise. Those people are not honest with themselves or their fellowmen or the apple trees, as far as that goes, and usually they are not honest in grading or in packing their fruit.

We have a whole lot of difficulty as our orchards are on hillsides, although we have some land that is nearly level; there are big, steep banks and you can't travel on them with a team, you can only walk. These banks are from fifty to one hundred feet wide. We drive to the top of them with our spraying apparatus and a man goes down the bank and sprays say a half or two-thirds of that bank; then the next time we drive at the lower half of the bank and spray the lower half and that sprays the whole bank.

It means a large amount of hard work to grow apples right. We have to make roads on our banks so we can drive our wagons holding our spraying apparatus and contrive means to keep them from turning over and from slipping over the banks. We use a power sprayer and a gasoline engine; we have two now and expect to have a third next year; we have a pressure of from 100 to 125 pounds; we use three or four different nozzles in a cluster, depending on the size of the caps. I prefer the medium coarse nozzle and not too fine a spray; I don't mean a coarse nozzle to throw a large stream; but late in the season I don't know but it would be better to have a little finer nozzle than earlier in the season. But the main thing is to get the stuff on and get it all over the trees. We can't use one of those overhead platforms on wagons because we would turn over very quickly. Our men have to stay on the ground and walk around the tree; we insist that they go clear around it and thoroughly spray every portion of it and where they can't get it on the outside we instruct them to put it on the inside.

Then, I believe in thinning the apples. By thinning you get a larger and finer quality of fruit, and too, our help is more needed in the fall than in the summer time; and I figure it is better policy to put some men in the orchards in the summer and pick some of the fruit than to leave them all until fall. After you have picked off half of the apples, sometimes two-thirds or more, you will have practically as many barrels of apples and they will be of better quality and you will get a better price. It is the only thing for a man to do who grows fancy apples.

The Colorado and far western growers thin apples and

your Connecticut people thin your peaches, why not your apples?

MR. HALE: Mr. Cox, do you realize the trees are 35 feet high here and it is not practical to get up in them to thin the fruit?

MR. COX: Mr. Hale, do you realize that you have to go up there to pick the fruit when it is ripe, and it is cheaper to go up there in the summer and pick part of them and drop them down instead of having to carry them down, and when they are ripe it will not take so long to pick them. It doesn't cost as much as you imagine, and I advise you to put some men into your orchards from the first of June to July or August, when the tree is too full and pick off all the little ones.

A MEMBER: Isn't it practical to clip them off with scissors?

MR. COX: No, I don't advise using scissors. Take off all the imperfect apples that have scab, insect stings or anything of that nature. Take off all you have the courage to take off and then pull off as many more and then when those that remain ripen you will have altogether too many. It is the same with apples, peaches and pears.

Now, in regard to picking. You pick peaches when they get just right; you want to have the color on them. You all know they do not all color at the same time. It is the same with apples. We put in some men and pick all that are nicely colored and ready to pick, the largest and best quality, and we leave the little ones and green ones, and you will be surprised to find later that they have grown and colored up wonderfully. It pays to leave them on the tree and go back a second time and get the remainder of the crop. For instance, take a tree that grows 10 barrels, go over that tree and pick off five or six barrels the last of September or first of October, leave the rest and when they are ripe and nicely colored you will find the fruit will be nearly as nice as the first lot you picked. Whereas if you picked them all at the same time you would have several barrels of small, green, worthless apples and you would be obliged to put them in for cider stock.

We take a table into the orchard with us and each picker

pours his apples on it. A man stands on each side of the table and sorts the fruit, another man faces the barrels with nice well colored fruit, another levels the top for the header, so then we face them at both ends with nice perfect apples, and make two grades, the first grade measures two and a half inches in diameter and up, and the next grade measures two and a quarter up to two and a half, and the second grade must be as free from scab as the first grade and nothing but good clean fruit put in either grade. We use a rubber stamp for marking our barrels for the name of the variety and grade and name and address of grower. I also have a dating stamp when it goes to the cold storage. We keep a book account of when our apples are picked and when stored, and we know exactly where they came from. We always pick out the wormy, inferior apples; the wormy ones we put in with the dropped ones. Last year we even sold our dropped apples to the cold storage people.

A few years ago the people in my part of the country didn't spray, but for all of that, there is now hardly a grower but what sprays and most of them are going to spray more this coming year. A neighbor of mine, just across the fence, had a five-acre orchard; he didn't believe in spraying; we did; he didn't believe it would pay; he said he had apples as good as ours, but perhaps not all of them were as good. I told him I knew it would pay. He wanted us to spray a row through the orchard and I told him I wouldn't do that, but we would take a contract to spray the whole thing and he wouldn't do it.

I told him, then, I would spray a row along the fence next our orchard. Then I offered him \$100 for the chances of a crop and he took it. I believe the trees were 12 years old and there were 225 trees—I sprayed them and cleared \$300 above all expenses. The fruit from the trees we didn't spray were scabby all over; the foliage was diseased and there was quite a showing of bitter rot. He said there might not be a crop the following year, and he would take the same for the next crop, and also we could take an orchard on a lower ground,—he thought it wouldn't work there. We took it but it happened to be a bad year, we had a frost at the time of bloom and afterwards bad weather; people laughed at me and said I was

up against it and that I would not come out even. We cleared \$175; there was no sooty blotch on any of them. The next year he put a spraying apparatus at work and cleared \$1,300 on these two orchards. Some of you think you can't grow apples where it is low and moist, but you can and you can keep the sooty blotch or fungus off, for I have done it, with spraying, but you can't do it by spraying once or twice. You must spray four or five times.

Practice some of these things. If you do people will be better pleased with your fruit and will have a keener appreciation of your work as a fruit grower.

Now about the sod mulch business. We put what manure we have to spare on our orchards and then we buy straw and haul it seven miles, baled straw to make mulch. The Experiment Station made a test regarding the straw; they bought the straw and we did the work; the straw costing about \$8 a ton paid a handsome profit on the investment.

A MEMBER: How many tons did you use to an acre?

MR. COX: As a general thing about one bale, 75 pounds, to a tree; I never figured how much to an acre, but we didn't put on enough, it settled down so much.

We have practically the same conditions under mulch as Mr. Hale has under his cultivation. You look under the leaves in the forest and there you will find decayed vegetation; that ground is moist and is never dry. Forest trees grow out of the moist earth; you can't have available fertility without moisture. You have both there. Now with apple trees we want the same conditions. That is the reason we are using the sod mulch system in Ohio. I believe here in Connecticut you can use the same system to advantage. I know it is better with us than cultivation, for I have tried both, and we cannot cultivate. If we did we wouldn't have any land left, it would all go down the river.

A MEMBER: At what time do you mow your orchard?

MR. COX: We mow the orchard grass and clover real early, the last week in May or early in June in Southern Ohio.

A MEMBER: How do you keep the mice away from the trees?

MR. COX: A man pulls the mulch away from the base

of the trees and tramps the soil down so the mice will not work in it. You want to pack down the soil so they won't work through it to the roots. We had a little trouble last year; sometimes they will work under the surface. I have seen instances where they girdled the roots under the ground for quite a distance.

A MEMBER: Suppose there is snow on the ground?

MR. COX: We are so situated we don't have snow like you do up here.

A MEMBER: Why not bank up a little around the trees?

MR. COX: That may be all right, but I don't do it.

A MEMBER: How would it do to surround the tree with tarred paper?

MR. COX: I don't know; I never tried it.

A MEMBER: Do you put that mulch on when you set the trees?

MR. COX: Yes; we put manure around the tree when it is set out; reasonably close to it and then we pile up some mulch around it after mowing. I do no cultivation on my farm except in the garden, and not enough there.

A MEMBER: What about the railroad worm?

MR. COX: We don't have that in Ohio.

A MEMBER: Are you troubled with borers?

MR. COX: Yes, sir; I expect we have lost as many trees from borers as anything else. If you keep all the mulch away from the body of the tree and stamp down the ground it may help. It is mostly new orchards that are troubled with them.

A MEMBER: How many times do you generally mow the orchard?

MR. COX: Generally twice. The last time about the last of August or first of September; it depends on the season and we leave it on the ground, you know.

When we pick we take the barrels into the orchard and as fast as we pick the fruit we have wagons that haul them as fast as they are filled and they are taken to the barn and then from there to the cold storage. I have known those apples to be kept until the next June and not have a rotten one in the barrels; and I have had some kept in cold storage for two years and they are as sound today as when they were put in two

years ago last October, although they have lost their flavor and color.

A MEMBER: How about the San José scale?

MR. COX: In one part of the orchard we have been troubled some.

A MEMBER: Do you always use the cold storage?

MR. COX: Sometimes, and sometimes we sell all the crop.

A MEMBER: How much do you pay for storage?

MR. COX: Anywhere from 35 to 50 cents a barrel, depending on the quantity stored, and the demand for storage space.

A MEMBER: Here in Hartford they charge me 25 cents a barrel a month.

MR. COX: I believe 10 cents per barrel per month is the customary price.

A MEMBER: I have been told 50 cents a season was the price here in Hartford.

A MEMBER: Do you scrape off the loose bark from your trees?

MR. COX: Since we have commenced spraying the trees don't have any loose bark.

A MEMBER: You had it at first, didn't you?

MR. COX: No, I didn't on young trees. The old trees were dead and my new trees hadn't any loose bark on them; you don't find any moss on them either.

A MEMBER: Have you done any spraying with especial reference to the San José scale?

MR. COX: Yes, several years we used crude petroleum; we got a little afraid of it and it was a little hard to get, so we took to using lime and sulphur.

A MEMBER: Did you spray freely with lime and sulphur?

MR. COX: Yes, I don't suppose there was half a dozen apples we had to throw out on account of the scale, only a very few at least.

A MEMBER: How old are your oldest trees?

MR. COX: My uncle set the first trees in 1847 and a few of them are alive now; those set in 1860, the Rome Beauties, are about all dead, and from 1878 we have all ages from that down, and plenty of them not bearing yet.

A MEMBER: Do you use fertilizers?

MR. COX: Nothing but sod mulch, manure and straw. Professor Green says it will pay better to buy straw rather than manure.

A MEMBER: Do you prune your apple trees much?

MR. COX: Not like we used to. I suppose if Mr. Hale should see my trees, he would say those trees were the worst he ever saw. I don't head in usually, although there are several reasons why you should keep the trees low; one is to keep the wind from blowing them over or breaking off, another is to keep the ground moist underneath them, and the apples from being whipped off in a heavy wind.

A MEMBER: How early do they commence to bear?

MR. COX: When they are four years old I have seen some trees have a barrel of apples to a tree; others not until they are six and seven years old or older.

I want to talk a little about politics before I get through. Not republican politics nor democratic politics, but farmers' and fruit growers' politics. We want to talk about laws that are needed to protect us in our business and for the general good of the country and oppose legislation for special classes or privileges. If monopolists take undue advantage of us we want to have the privilege of getting redress in some way. I want to say that I am heartily in favor of the parcels post and we should have it. We pay the express companies too much for their services and Uncle Sam can do much of the work for less than half of what the express companies charge. I recently heard Mr. Lupton of Virginia state that the publisher wraps up his papers one in a package and Uncle Sam takes them to any part of this country and delivers them for one cent per pound, or he may take a large bundle of them and send to any post office and the postmaster opens the package and delivers a paper in a place for one cent per pound. What would happen to the fruit grower and his customers if he could send some apples through the mail at one cent per pound, or could send a box to the postmaster and he would open it and find the name on each apple and he should deliver them one or more in a place for one cent per pound? (Laughter.) Of course that is an extreme case, but there can be a happy medium.

We used to drive to town with our products and sell direct from the wagon to the trade or the consumer, but now we sell mostly over the telephone and send the fruit in the next morning. As we had no telephone connection a few years ago, we established our own system and made connection with the towns. If your telephone service costs too much you might put up your own lines and establish an independent system and get better service at less cost.

MR. HALE: Mr. Cox, we have a law here that we can't have but one system.

MR. COX: Go to work and have that law repealed.

I was talking to a Connecticut man here and he had never heard of a "girlless telephone," an automatic system. The one making the call makes his own connection and does the ringing and can get the party sooner than he can get the operator with the old system.

MR. WOODY OF COLORADO: I hope you won't invite Mr. Cox to speak to you again; if you do I can't sell my Western apples for a dollar a dozen. I appreciate the fact that not every one can grow such apples as Mr. Cox is growing, but the same thing is possible to a certain degree right here in Connecticut. I say that as a Western man who don't want you to grow too many apples here, too, as we are planting a great many trees in the West. I want to say that I appreciate Mr. Cox's address from the standpoint of a perfect apple.

MR. FENN: I want to corroborate what Mr. Cox has said in regard to mulching. I had some experience along that line and know that what he says is true. Also we don't spray enough; I am going to spray more this year than ever before.

A MEMBER: I got a fine catch of crimson clover in my orchard, and instead of plowing it under I mowed it and gathered it and put it around the trees. I sowed clover and had a fine crop of it. It was high that year so I put it in my barn after gathering it, and mowed the grass off a low meadow and carried it and put that around the trees; the aftermath was left and not cut. I would not thank a man to put a plow in my orchard; in fact, I would prosecute him if he did it.

At the close of Mr. Cox's splendid address with discussion, the audience was invited to rise and join in singing "America," which was heartily done.

PRESIDENT EDDY: I now wish to introduce to you Mr. E. Cyrus Miller of Haydenville, Mass., owner of Hillside Orchards. Mr. Miller is a near neighbor of ours and as he has to deal with conditions very similar to our own we should learn much from his remarks.

The Profitable Handling of a New England Apple Orchard.

By E. CYRUS MILLER of Haydenville, Mass.

Mr. President, Ladies and Gentlemen: While we in New England have not attained the remarkable results that our fellow orchardists of Colorado and Oregon have in line of profitable fruit growing, nevertheless, I am firmly convinced that the next few years will witness a marked improvement in the methods of management of our orchard lands and results will be obtained that were never dreamed of a few years since. Admitting all the difficulties that we have to overcome, such as the increasing prevalence of insect and fungus pests, and that even more difficult proposition, the labor problem, nevertheless I am filled with optimism when I consider the quality of our soil and the character of our climate and our rapidly expanding markets,—these forming a trinity of advantages, which is not surpassed, if equalled, in any other section of our country. While our rough and rugged old New England may not be the “garden spot of the world,” nevertheless, there are some of us who know that our fertile fields and sunny slopes, sheltered perchance by virgin forests or towering mountains, provide an environment for the successful culture of that monarch of all fruit, the apple. To sustain my contention that apple culture may be one of the most profitable lines of work, both in regard to financial returns and as a healthful and pleasant occupation, I would affirm that the most valuable acre of land devoted to agriculture within our borders, excepting only such high priced land lying close to our large cities and devoted to the intensive market garden industry, is the acre occupied by the well fed, scientifically pruned apple orchard. When one sees 95 barrels of apples taken from three trees, 95 per cent of which were marketable apples, it begins to show the possibilities there are

in apples right here at home. Our soil is an everlasting mine, never to be exhausted, like the gold and silver mines of the West, when given the proper care and attention. Our atmosphere is one vast reservoir of oxygen whereby our fruit trees may breath and be stimulated to make a healthy and vigorous growth. Our elevations furnish locations whereby our orchards may be removed from the damp, muggy atmosphere of the lower elevations as well as furnishing such air drainage as to protect our trees from late spring and early fall frosts. The greatest good a writer or speaker on horticultural topics can do today is not to endeavor to instruct on the different details connected with the growing and marketing of apples, but rather to try to inspire their readers and hearers to a more optimistic view of the apple industry, to encourage them to apply some of the same principles of gumption to apple growing that they do to animal husbandry or other lines of crop production.

In establishing, developing and maintaining a small or a commercial orchard in New England, these things are necessary and the success attained will be in proportion to the possession of these three qualities: *First*, a liking for the business. We talk about our boys and girls having a talent for such and such a line of work. It must be equally so with the successful fruit grower; he must have not only a talent for the business, but likewise a love of it, for it is a long road to achieve success in apple culture and he will be beset by so many disappointments and obstacles as was Pilgrim when in search of the Holy City. *Second*, a thorough knowledge of the technical side of the subject. While apple culture is not a science but rather an art, the latter can and should be largely influenced by scientific investigations and thought. To illustrate the importance of this theoretical knowledge I would mention the necessity of a knowledge of the maintainance of soil fertility, the philosophy of tree growth as it applies to the apple. The chemical analysis of the tree and the fruit and the effect upon the latter by different elements towards influencing a change in color, texture and keeping quality. While this theory must all be worked out in practice it is as essential for the easy, quick solution of the problems involved as that an architect

shall have plans and specifications before commencing the building of the modern sky scraper or palatial residence. The *third* essential, from an economic point of view, is an administrative ability to apply what technical knowledge may have been acquired, in a methodical manner, to see clearly what varieties are adapted to that particular location, to be a student of market conditions, to ascertain where and whom to sell; and last but not least is the capacity for management of help, either directly or through judicious choice of foreman or overseers. This business or administrative ability is the secret—if it be a secret, of the marvelous success of our great captains of industry. Our great fruit growers all have this quality in a very marked degree. They have planned for the harvest and when the harvest came they were ready for it. No matter what the condition of the weather or of the market they planned to get the most out of their crops. Help was secured to gather their fruit when it was ripe, orchard equipment was provided, barrels or packages were provided in anticipation of the harvest; storage was secured to protect the crop in case a sale was not made before the fruit was gathered. It was the attention to all these details that has made all the difference between profit and loss in many an orchard, not only in New England but likewise through many other sections of our country. To be wise is to have a vision of all the contingencies that may arise and thus be prepared for them in their time and season.

The first step is taken in the profitable handling of an apple orchard before a sod has been turned; we should with great care select the soil in which to plant our trees. You all know the apple is adapted to a wider range of soils and a greater change in climatic conditions than almost any other fruit. Nevertheless, a good soil that is well adapted to the apple is so much to the grower's advantage. In a soil survey made by the Department of Agriculture at Washington, taking in the Connecticut valley for some distance south of here and extending north through Massachusetts, following the river approximately, to the Vermont line, there are described 14 different types of soil, but in all these 14 different types there is only one type that is particularly recommended and described as being

especially suitable for the production of apples, and that is what is described as the Holyoke stony loam; the report also said that on the hills to the north and westerly of Northampton are lands particularly suitable for the establishing of apple orchards. This is the particular location where our orchards are located. We have taken the virgin forests and partly cleared fields and plowed them and cut the brush and weeds wherever necessary to establish our orchards on these lands, where we could have perfect air and water drainage,—on the hillsides.

One essential is that the trees shall be planted so they will not have wet feet. We do not enjoy that condition, neither does an apple tree; you can give them a large amount of moisture as long as that moisture is not stagnant; keep it in circulation. Just the moment it becomes stagnant the tree will begin to show the effects of such a condition; the leaves will drop prematurely, the fruit will be small and insignificant.

Great care should be taken in selecting nursery stock. Decide which varieties are best adapted to your locality. While we have an advantage in New England of a large number of varieties I think we have made the mistake of planting too many varieties. I am an advocate of the Baldwin and some call me a pretty narrow apple man. The latest application I had was from the "seedless apple" man, showing me a specimen of his "seedless apple," but it had no attractions for me. I am in the apple business largely because I love it and secondly because of the money there is in it. All that I have or ever hope to have must come through my success or failure in this business, so I have cut out my path, trimmed my ship and the Baldwin is what I have tied up to.

A MEMBER: How many trees have you?

MR. MILLER: Something like 2,000 trees and I mean to extend that number until I have 5,000, which number I believe is all that one should attempt to look after.

I believe it is better to plow and crop the land for a year before you set the trees; tobacco is good for the first year.

A MEMBER: What is the matter with potatoes the first year?

MR. MILLER: They may be just as good; it is simply a

matter of convenience. As a rule our rotation is tobacco and corn and then seed the orchard down.

After the first year we head the trees back a little, shape them up and have a symmetrical and well balanced top, which plan we mean to follow throughout the entire time. When the trees are 4 years old we put tin around the trunks to keep the mice away from them.

We have heard today about sod culture,—mulch system—but for our particular location and in connection with dairying and other lines of crop production which we are doing, we follow the rotation method, cultivating and fertilizing very heavily, and seeding down; then taking another section of the orchard and doing the same with it. In that way we get a good growth on our trees; we get good color on our fruit and also provide something whereby to carry the stock and provide an income from other sources.

A MEMBER: Do you take the crop of hay off?

MR. MILLER: Yes, sir, whenever the land is seeded down we cut the hay and take it away, but we put on a top dressing of manure, whether it is in cultivation or not. I would say that stable manure and wood ashes are our standbys; also tobacco stalks, estimated to be worth \$5 an acre for fertilizer; there is nothing so strong in potash as tobacco.

A MEMBER: How much ashes do you put on?

MR. MILLER: Forty bushels to the acre; something like three pecks or a bushel to a tree.

My idea is to prune so the lower branches shall just about touch the ground; not to have a mass of fruit on the inside of the tree so the air and sunshine cannot reach it, but have the fruit on the outside of the trees. One-third to one-half of the fruit on these 20 years old orchard trees can be picked standing on the ground.

A MEMBER: What do you know about quince growing?

MR. MILLER: I believe the possibility of a quince orchard is good. I shall in time plant such an orchard. The market conditions are good.

MR. ROBERTSON: Do you know what land is adapted to the quince?

MR. MILLER: I have a piece of land that is just adapted

to it. This particular piece I have in mind and which I am reserving for this purpose, is a moderately rolling section and a little heavier soil than we use for apples; it also is situated a little lower. One of the difficulties of establishing a quince orchard is the scarcity of obtaining quince nursery stock. I was talking with one of the largest nursery stock men in the country the other day and he said he had but very few quince trees and he didn't think it was possible to buy a thousand trees in the United States. There is a growing demand for quince; that I have ascertained from talking with the leading fruit men. A few years ago one man over in the eastern part of the state had a few trees and he sold his crop as high as \$4 and \$5 a bushel. There is surely a demand for this fruit, and we can carry the business along with our apples. The quince is a pretty sure cropper, produces very uniform fruit and sells at very uniform prices and would produce a revenue that would be an advantage to fruit growers.

A MEMBER: What about the diseases that attack the quince?

MR. MILLER: I think that is one reason why the quince business has nearly stopped, because the trees have not been properly cared for. My idea is to establish an orchard by itself and by treating the trees in a thorough and systematic manner and by spraying thoroughly I think there would be no difficulty in producing good fruit.

In spraying we do not use a power sprayer but a good-sized hand power pump on a truck, which goes through the orchard and sprays thoroughly one side of the trees and returns on the opposite side and just as thoroughly sprays that side; it does effective work.

I believe thoroughly in spraying when it is well done. One must have an equipment that is large enough and men that know their business and will do the work thoroughly. There is no use in commencing to spray unless you are well equipped and thoroughly understand what you are spraying for.

Care must be taken in making the mixture, and in the case of Bordeaux and Paris Green it must be perfectly fresh and put on the trees as soon as mixed; put on in the right manner and then you may expect to have good results. I look forward

to the time when more of our growers will spray and spray right.

A MEMBER: How about raising the Siberian crab apple?

MR. MILLER: I know nothing about it, only that we have one crab apple well adapted to our soil; we get an abundant crop of fruit one year and practically nothing the next year.

A MEMBER: Do you plow and cultivate your largest apple orchard?

MR. MILLER: Yes, we plow and cultivate and fertilize the largest trees we have.

A MEMBER: Don't they grow pretty near together to do that?

MR. MILLER: Our distance apart is 40 feet between the rows and 35 feet in the rows. We plant our trees as we wish to have them for all time.

A MEMBER: How can you cultivate when your limbs grow so near the ground?

MR. MILLER: Never under the trees; only to the extremities of the limbs; under the trees is grass.

MR. COX: You mulch, then?

MR. MILLER: No, because the grass is taken off.

A MEMBER: I don't understand how you can plow and cultivate when your trees are full grown; there is no space there between the limbs. They touch each other, don't they?

MR. MILLER: They will very probably in time; that time hasn't come yet. Thirty-five and 40 feet are further distances than a good many orchardists put their trees. Too close interplanting of trees is one of the mistakes. Some do it with the idea of cutting out every other tree, but so far as I have observed they have been left until there are two poor trees instead of one good tree.

A MEMBER: Did you ever try mulching, comparing it with cultivation?

MR. MILLER: We find that a rotation of crops and tillage of an orchard is very profitable.

A MEMBER: Did you ever try the mulch system?

MR. MILLER: No, sir, I never have.

A MEMBER: Did I understand you to say while talking with a man in the rear of this hall, that 65 per cent. of your fruit is perfect?

MR. MILLER: I was alluding to the fruit grown in a little place called "Apple Valley" in another section of Massachusetts, and which I visited and saw upon three grown trees 65 barrels of apples, or rather, it was reported to me that that was the fact. I have no doubt about the accurateness of the report.

A MEMBER: What were the peculiar conditions of these three trees that produced such a crop?

MR. MILLER: There were no peculiar conditions; they were in sod; absolutely and totally in sod that had been mulched with manure, stable manure and ashes, practically the same treatment as we give our orchards; they have taken something like 5,000 or 6,000 barrels of apples from that little place and realized a very handsome price per barrel f. o. b. cars; that method is a common one in your locality for selling apples.

A MEMBER: I know of a tree in Southington that bore 65 bushels a year on one half the tree and the other half bore the next year the same amount.

MR. MILLER: In Apple Valley I saw several trees bearing from 15 to 20 barrels of apples.

The Baldwin is known as a biennial bearer; an individual tree does not bear every year, but a person having a large orchard will be likely to have apples every year.

A MEMBER: Do you trim your trees generally in the winter?

MR. MILLER: Yes, one trimming in the winter; that is the work I plan for myself during the winter, and it is seldom there is a day so cold that I do not work at it.

A MEMBER: How do you get rid of the sprouts that come out in the spring?

MR. MILLER: I make another pruning of the orchard in June, taking off all sprouts and anything that may have come up from the roots.

One of the essential things in successful fruit growing is to have some sort of a storage whereby when the fruit is gathered it may be immediately stored.

A MEMBER: You don't get good color on apples grown so close to the ground do you, as good as the fruit in the top and sides of the trees?

MR. MILLER: Practically the same color. In pruning you must do your work so the air and sunshine will have a perfect circulation.

Another thing when you are harvesting the fruit, have plenty of barrels provided and have everything done at that time in a thorough and systematic manner. The labor problem is a serious one, to be sure, but if you are well provided with appliances more than half the story is told. And then the picking of the fruit, that is another important item. The manner in which a good deal of our fruit is packed is a standing reflection upon the apple growers and there is much shiftlessness exhibited throughout New England in this work. We have generally used second hand barrels unless our customers wish to pay for a first-class barrel, and I have never yet found a buyer who took advantage of the offer to buy his own barrels. I believe much responsibility yet rests upon the shoulders of the buyers, although the producers must do their share to keep their product up to the standard.

A MEMBER: Where do you get the ashes for your trees?

MR. MILLER: We buy what is called the Canada hard wood ashes in carload lots from \$10 to \$12 a ton, and also all the wood ashes we can get in our town.

PRESIDENT EDDY: If you have finished the discussion of Mr. Miller's address, we will pass to the next subject. The gentleman who will now speak to us is closely associated with the business of fruit handling and selling and he will tell us many interesting and practical things. I introduce to you Mr. Thomas A. Berry of Hartford, who will address us regarding "The Practical Side of the Cold Storage Question."

The Practical Side of the Cold Storage Question.

By THOMAS A. BERRY, Hartford.

Unseen forces are ever transforming the things that are seen. Vapors rise from the sea and fall upon the plain and rise again in the juices of myriad plants, meat for man and beast. Though the fruits be gathered and the cattle be slain for food, chemic changes continue and new forms of life ap-

pear. That which nature prepares for food is daily bread. If the day's need leave it unconsumed, she unfits it for our use and returns it to her laboratories or gives it to the bacilli. Her bounty chooses its own seasons and regards not the hunger of man between her harvest times.

But science intervenes and takes within her care the food that nature would destroy. She weaves her magic circle around it and ordains that it know not the season's change, nor rain or drought, nor growth or decay until in his more needful time, man please to take it for his use.

It is a far cry from the cachè of the Esquimaux to the frosty refrigerators of a now-a-day purveyor of fruits and flesh. The brush-fire of the ancient cliff dweller has its analogue in the radiator of his modern prototype, the flat dweller, but we find no parallel in the domestic economy of prehistoric man for the chilly tubes in the cold boxes of the up-to-date cold storage plant. The storage of good by the cave man was nearly represented by the cubical contents of his stomach and when that became empty the gods were implored for more,—sometimes vainly. Supply and demand were often out of balance, and there were famines in the land. As population became denser and the necessity for food preservation more important and the arts of civilized life began to unfold, our grandfathers smoked and salted and our grandmothers pickled and preserved. But "Salt Meats," for all times, were not pleasing to the palate and pound for pound sweetmeats were cloying.

The art of maintaining temperatures above that of surrounding atmosphere is older than prehistoric legend, but methods of maintaining temperatures below that of surrounding atmosphere are comparatively modern.

Popular notions of heat seem to start from the temperature of the living human body as their initial point. What feels warm to the touch is readily understood to have heat, and what feels cold is loosely thought to possess some opposite property or quality. Science defines heat as a kind or form of energy, of which nothing in the universe is wholly devoid; for which each material substance has its characteristic and definite capacity, referred to as "specific heat." The heat of

the body has a two-fold function; its so-called "latent heat," determining whether its form be solid, liquid or vapor. Its so-called "sensible heat" determining its temperature.

Melting ice, blood heat, and boiling water fix convenient points on a scale of temperature which extends far below and still further above this familiar range. If we are in contact with a body having a lower degree of sensible heat than ourselves, heat passes from us to it, occasioning the sensation we call cold; if we are in contact with a body of higher temperature than ourselves, we feel the inflow of heat from it to us, and call the thing hot. Nature in each case is making for an equilibrium in temperature and illustrating the first laws of thermodynamics: which science, further, treats of the transmutation of this indestructible, all-prevading energy, from one of its forms to another, from motion to heat, latent or sensible, and *vice versa*.

The United States, "land of the free and home of the brave," is preeminently the home and the land of refrigeration, a fact attributable to several causes; variability and diversity of climate; high standard of living; facilities for interchange of products between distant localities; variety of food products; the national liking for iced drinks, the householder's provident habit of buying considerable supplies at a time instead of buying each day only the quantity for the day, as is the custom of other lands; and lastly, the promptings of Yankee inventive genius and commercial enterprise.

Prior to 1900 natural sources of cold, chiefly ice from lakes and streams, were employed to some extent to preserve food, but operations were limited to a few food products, and the period for storing them was restricted. Practically the temperature obtained was not below 36 degrees Fahrenheit. Freezing temperature could be had by use of salt with ice, but the expense was excessive. The large space required for an ice storage house, together with the limited range and imperfect control of temperature, rendered impossible the extensive and varied operations now made easy by employment of mechanical means of refrigeration. Besides this, ignorance and neglect of the importance of ventilation and regulation of atmospheric moisture made unattainable then such perfect preservation of goods as is now accomplished.

The application of the principles of thermodynamics to the business of preserving food products, not salted, dessicated, smoked, pickled, or otherwise treated, but in their natural condition, rivals in the success and importance of its results any of the achievements of science in the wide realm of the world's economies and comforts. It has provided a balance wheel to equalize and distribute the load between food demand and food supply, and instituted a storage battery for the ultimate generator of human powers—the stomach.

The art of mechanical refrigeration began to gain the confidence of business men within the last quarter century. Its practical development and the transformation and enlargement of the industry to which it is applied, have been so rapid and so great that adequate statements of them is impossible.

The refrigerator cars of Swift, Armour, Schwartzchild, and other dealers in meat and perishable products have become as familiar objects to the traveller as coal cars or Pullman sleepers. From London sail a hundred and fifty ships built to carry chilled and frozen meats, together with fruits, vegetables, butter, eggs and cheese, and, in fact, any product that is of a highly perishable nature and that would carry better while under refrigeration. The lines of travel of refrigerated vessels touch every ocean port and make a network upon the map of the high seas. In 1906 they brought from Australia and New Zealand home to England two hundred million pounds of mutton and lamb and seventy-five million pounds of beef all frozen. In the same year our country sent to Great Britain two hundred and seventy-five million pounds of chilled beef. Of course, this beef was first carried from the plains to our Atlantic Coast. Add to that a far larger amount distributed over the United States from the great slaughtering and packing houses of the middle West. Add then some estimate of the perishable food stuffs other than meat, such as apples, oranges, peaches, pears, apricots, plums, etc., likewise distributed or exported and your calculations will approach the volume of traffic in refrigerated food stuffs.

These refrigerated ships and cars connect cold storage houses. Australia has twenty-five establishments in which to freeze her export meats and London has as many more cold

storage houses in which to receive them. These depots for perishable food stuffs are to be found throughout the world. They enable each locality to have at command at any season the products of all climates. They take up, as reservoirs, from the yield of the season whatever exceeds current demand, and hold it safely until the market calls for it. Prices do not range so high as once they did, because the markets nowadays are never without reserve stock; prices do not fall so ruinously low, because the temporary surplus can be stored instead of sacrificed. The cost of good living is made lower, the business of producing and dealing in food stuffs is made safer.

The up-to-date cold storage house has also an important sanitary function. It is a guarantor of good food.

The not uncommon notion that goods in cold storage are somewhat impaired, has some justification in experience with the comparatively crude methods of several years ago, or with the imperfect results obtained today in houses whose improvement in appliance and method has not kept pace with the swift advance of the art. It is not sufficient for the preservation of goods according to standards of 1900 to run them into a big room and keep it *pretty* cold. Competition may be relied upon to enforce among storage houses the law of the survival of the fittest. The up-to-date storage house with its elaborate system of ventilating shafts, ducks and dampers to keep the air in its rooms always pure, with its partitions, false ceilings and blowers for interior air circulation, its duplicate machines and reinforced refrigerating coils for emergencies, its outfit of thermometers, gauges, psychrometers and what not, automatically registering all conditions, is a costly plant to erect and equip. Complete equipment and competent management insures perfect preservation and make storage of superior goods highly profitable, but the expense involved precludes the storage of inferior goods which at no time brings good prices. It follows that what comes from a first-class storage house not only is good as when it went in, but was excellent stock to start with. Therefore the cold storage business tends to improve the quality of the general food supply. The practical benefits of a well-equipped cold storage plant in any community is something which cannot be lightly estimated.

It would not take a very extensive draft upon the memory of any of the gentlemen here present to remember back to the time when at this particular season of the year a commodity such as eggs and, in fact, butter, was simply out of the question. They could not be obtained at any price. The great production of eggs and butter, during the usual periods of production, had to be consumed or disposed of in some manner or another or they simply went to waste. To be sure they used a primitive system of liming, which in its very nature was expensive and very injurious to the product so treated, but, as a matter of fact, that was the very best preservative obtainable at that time. When that particular process was in operation the prevailing price of eggs to the farmer who produced same was from seven to eight cents per dozen, and not a great many wanted even at those prices. The cold storage plants have certainly done away with all those killing prices to the farmers for those particular goods. Statistics go to prove that in the last five or six years the prevailing price paid to the farmer for his eggs during the producing months of April, May and June would average from seventeen to eighteen cents per dozen. The very reason for this advance in price is owing entirely to the modern methods of being able to take care of this particular commodity as soon as produced. They are gathered and hastily transferred into new cases, put in first-class shipping shape, loaded into refrigerator cars and immediately started East consigned to the cold storage warehouses that will hold same for a period covering from six to eight months, delivering them to the consumer in almost as good condition as when they were received from the farmer. Of course, it must be said with all truthfulness, that the cold storage plant, of itself, is not to be treated as a magical institution. We have noted in our experience, especially in this particular locality, that the principal product which we receive from pomologists hereabouts is apples, pears and a number of the smaller fruits. We have seen, much to our distress and to the great expense of the owner of certain goods, that they absolutely lack the fundamental knowledge of packing and storing the right kind of goods. Our particular locality seems to be favored with being able to consume all fine fruits almost as soon as they are pro-

duced, therefore we find few of the growers hereabouts taking advantage of cold storage facilities to await the advance in markets which are usually a part of the progress of every year's business, and we regret to state that those who do avail themselves of the operations of up-to-date cold storage service, usually send a grade of goods for which there is no demand whatever, neither will there be at any time. Our experience with apples is particularly true in this respect.

I cannot but recite the incident of a friend of ours who came to make arrangements for the storing of two hundred barrels of fine Baldwin apples. The arrangements being completed the gentleman went on his way rejoicing and, in the natural course of events, a car of apples was received from our good friend. Upon opening and inspecting same, we found that he had shipped us a car of windfalls for cold storage purposes. We were much in doubt as to whether this particular shipment was meant for cold storage or the cider mill. Upon getting into communication with him, we found that he really meant to store these goods. We, of course, had no other alternate but to follow out his instructions, which we did. The result was—total loss, together with incidental expenses in regard to the shipping, handling and packing of same.

We find that the customers of our house have had the greatest success and made the most money from goods which they carry in cold storage by making a practice to put away nothing but the finest. It is needless for me to call your attention to the fact that there is always an open market for *fine* goods, no matter what those goods might be. This is true of apples, peaches, pears, plums, etc., provided, of course, they are disposed of in seasonable time.

The peach industry hereabouts is one in which we have become very much interested. We have had the satisfaction of carrying several thousand baskets of peaches last year in our house for different growers during the periods when the heavy flow was on. You are all, of course, well aware, that there is a period throughout the different harvest seasons when the market gets into that stagnant state which we call "glutted." Goods arriving upon a market in that condition, have got to be sacrificed. A number of the leading growers

have found it profitable during that particular period to forward their goods to the cold storage and hold them there for a period of anywhere from ten to twenty days, when same are ready to go on a market that will be in readiness to receive them. In our experience we have never seen peaches going from our plant at a price that would show a loss to anyone. Usually the profit is handsome indeed.

A word about the packing of apples in particular would probably not go amiss at this time. In this particular market the standard barrel seems to be the prevailing and the desirable package in which to pack apples. We, ourselves, have been strong advocates of the bushel box, but we find, as jobbers in apples, that the box will not do for this particular market. The people to whom we would like to sell those goods seem to know the cubical contents of a barrel and they are not disclosed to experiment with any other style of package. We, therefore, would not care to recommend anything other than a clean, well coopered barrel that has been well filled and packed. Our experience has taught us that the looks of a package going into a man's place of business nowadays is one of the best salesmen that we have out. A package loosely put together and the goods indifferently packed, militates against the sale of such goods very much indeed.

The packing of over-ripe apples for storage purpose is something that has got to receive a great deal of attention. Over-ripe fruit will *never* do for storage purpose when same are to be carried any length of time. When fruit becomes over-ripe destruction and decomposition to a certain extent has already set in. Nothing that temperatures or cold storage warehouses will do or can do will prevent the progress of this fault in fruit. The successful grower of apples, by him we mean the one that has found the storage of those goods the most profitable, is the one who upon harvesting his crop took particular pains to see that, while same were in a hard, firm state were immediately rushed to the cold storage warehouse for storing. Goods arriving at the cold storage plant in that condition will receive a guarantee of perfect delivery at the end of the storage season. There is no reason whatever why the storage of such goods should not show a handsome profit to the owners.

DISCUSSION.

Following Mr. Berry's very carefully prepared paper, an interesting discussion of the subject ensued.

A MEMBER: I would like to ask Mr. Berry what temperature he keeps his apples in.

MR. BERRY: Of course that is a leading question and a question that we find most cold storage men differ on. There are some apples that come in such shape, as I have mentioned, that they can be carried at a temperature of 29 degrees; others that come in different stages of ripeness that will not take that temperature without freezing. Apples carried at a temperature of 29 degrees will not freeze if they are the right kind of fruit. We find the lower we carry apples the better it is for them; they come out much better.

MR. COX: Different varieties have something to do with the temperature, don't they?

MR. BERRY: Yes, varieties have a great deal to do with it.

A MEMBER: Do you mean to say that you keep our orchard-packed winter apples as low as 29 degrees?

MR. BERRY: Yes, sir.

A MEMBER: How long can you keep them and at what temperature do you keep peaches.

MR. BERRY: That is entirely at the discretion of the owners. We have seen them kept for 60 days and to all appearances they were perfect; it all depends on the care of the fruit.

A MEMBER: At what temperature will apples freeze?

MR. BERRY: Apples will freeze at 29 degrees where the temperature is that low in a room where the circulation is not right. We use what we call an air circulating system entirely; probably the only system of the kind in this section of the country.

A MEMBER: Will apples keep as well after being taken out of that low temperature?

MR. BERRY: That all depends on conditions. My experience has been, in handling them, they will keep better, if you don't keep them too long. The average buyer usually gets them from us as he needs them—that is what the storage is for; the rate is regulated by the cold storage warehouse as-

sociation, and is guided by the quantities stored; the industry being practically new we try to invite as much custom in that particular line as possible.

A MEMBER: How small a shipment of apples will you accept?

MR. BERRY: Anything from one barrel to ten thousand barrels.

A MEMBER: About peaches, some say that cold storage spoils the flavor and hurts the sale of the fruit when they come out of storage. Is that true? And how about the peaches sweating?

MR. BERRY: That is also a leading question. If the fruit is removed from the cold storage a sufficient length of time before placing on the market there will be no trouble on the score of sweating, say from 12 to 20 hours.

A MEMBER: Does it hurt the taste of the peach?

MR. BERRY: After a certain length of time I should say it would.

A MEMBER: Have you had any experience with grapes?

MR. BERRY: Yes, all the small fruits we have carried for a reasonable length of time; there is only a limited season that you can carry them, however; and that is through the glutted season; after that is past there is no market for them.

A MEMBER: How late can you keep pears?

MR. BERRY: My experience with the pear has been that the average pear grower would like to dispose of his pears as soon as they are picked, but they can be stored successfully quite a long time.

PRESIDENT EDDY: We will now take up the List of Questions on the program and as number 14, "Who has had experience with boxing apples?" has been asked for, we will call upon Mr. Patch of Boston to answer that.

MR. PATCH: Our boxes of apples come largely from Idaho and Oregon, some containing 150 and some 112, and some as low as 72, all wrapped in paper, and every apple as perfect as it is possible for an apple to be. The call for boxed apples this year has probably quadrupled that of any other previous year. The boxed apple has come to stay; it is a

nearly perfect package and the fruit itself is in nearly a perfect condition upon arrival; it is especially satisfactory to hotel people. A hotel man can buy 150 apples for \$3 and he knows every apple will be in perfect condition, whereas if he buys a barrel of apples for \$3 he is liable not to find 150 perfect apples in the whole barrel.

A MEMBER: Don't you think Connecticut growers could raise as good apples as they do in Oregon or Colorado and other Western states, pack them in boxes and get as good a price?

MR. PATCH: I am afraid that Connecticut or any other New England state cannot grow as fancy a looking apple as can Colorado, Oregon or Idaho; they have the soil and atmospheric conditions right for producing the finest looking apples in the world.

A MEMBER: But how about the flavor?

MR. PATCH: I am a New Englander and I don't think there is any flavor in the world equal to that of our New England-grown apple. I don't believe there is an apple that has the sharpness and crispness of the New England-grown apple, and that is one reason why our New England apples don't keep as well as the Western apples do.

Others present expressed the belief that if Connecticut growers would spray more they would then be in the same class with the growers of the Western states.

A MEMBER: Is it possible to pack a barrel of apples and ship it a thousand miles and have it in such condition that the apples won't rattle at the end of that time?

ANOTHER MEMBER: Yes, sir, and you aren't obliged to press them too hard, either.

A MEMBER: What is the advantage of a box over a barrel as a package for handling fancy fruits or apples, and transporting them and having them arrive at any market in as good condition as when they left your hands?

MR. PATCH: Well, a barrel and a box are entirely different packages; some want a barrel and some want a box.

I consider the box the ideal package. It is a difficult matter to get our growers to put their apples in boxes yet, but

I think they may when they see it is to their advantage in a monetary way.

MR. BERRY: I think the apples in boxes come out much better. With the barrels you can never tell what process is going on inside; they come in an air-tight condition and it takes so long to remove the orchard heat and get the barrel to the proper temperature and all the while you are working in the dark, while with a box the conditions are entirely different. Some think 29 is an extremely low temperature to carry apples at. I am quite sure that most of the gentlemen here don't know that it takes nearly three weeks to get the orchard heat removed from an air-tight package. You must not imagine that apples need be kept at that temperature after that heat is removed.

MR. PATCH: Isn't it true that in almost every case, whether with apples or eggs or butter or what not, if it is put in in good condition it comes out in the same condition?

MR. BERRY: There is no question at all regarding that. If a package is put in absolutely perfect it will come out absolutely perfect. We have carried apples in our cold storage two years and kept them absolutely sound.

MR. WOODY: You don't want to press the apples too much. If the fruit is a little large we separate the apples with paper, as you would eggs. In regard to the package, too, if you want to purchase all of one kind, then perhaps the barrel is all right, but if you want two or three different kinds you don't have to spend so much money to get the different varieties by purchasing the boxes as barrels, but it has nothing to do with the apple commercially.

MR. FENN: Four years ago I had a very nice crop of Greenings and invested in 100 boxes. I never sold a box of apples that year and haven't been able to do so since, and I have sold the boxes to Professor Gulley for his use. The difficulty is the box is too expensive. We pay 25 cents for second hand barrels and from 35 to 40 for new ones.

PRESIDENT EDDY: Question 9 is called for and we will pass on to that: "What should be done with No. 2 apples?"

MR. COX: Thin your apples in the summer and get rid of your number twos.

J. H. HALE: Mr. Cox has told the whole story. Don't have any No. 2 fruit?

PRESIDENT EDDY: I think that question is fully answered, and we will pass to the question next called for, No. 11, "Is not sooty fungus the worst fungus we have in Connecticut on our apples? Will late spraying with Bordeaux prevent it?"

MR. COX: You can prevent it by late and thorough spraying. I know that from my own experience.

PROF. GULLEY: You can control it by spraying, but not by one or two sprayings in July. Take it with our Greenings last season, up to August there was not a showing of it, but from then up to picking time the fruit was covered with it. I am sure if we spray thoroughly and late with Bordeaux we shall find it will have a very marked effect on all the trees, and you must do the same for the codling moth too.

PRESIDENT EDDY: It is now five o'clock and time for the closing of our afternoon session. I am sure we must all feel that this has been a most interesting and helpful session and that we have been given a great many valuable points on the growing and marketing of our most important fruit crop—the apple. Let me urge upon you the importance of beginning our evening session on time and as we have a splendid program for tonight, be on hand promptly at 7.30.

Adjournment until the evening session was then taken.

THE EVENING SESSION.

The meeting on Wednesday evening, February 6, will long remain a bright spot in the memory of the Society members who were so fortunate as to be present. A program of more than usual interest had been planned and was carried out to the letter, each feature delighting the large audience and especially the ladies for whose special benefit the several speakers were selected. As an innovation, musical numbers were introduced and the performances of Miss Barber of Farmington and the Smithsonian Quartette of Hartford were especially pleasing and rounded out an evening of rare entertainment.

Everyone regretted the absence of Gov. Woodruff, whose address, scheduled for the afternoon or evening, had to be omitted, owing to other engagements.

The session opened at 7.30 with a piano solo by Miss Barber, finely rendered, then followed remarks by visiting delegates from other states. In introducing this feature President Eddy said:

PRESIDENT EDDY: We have with us several visiting delegates and now seems to be an opportune time to hear from them. I will first call upon Prof. J. B. Smith of New Brunswick, N. J., Entomologist of the New Jersey Experiment Station.

PROFESSOR SMITH: Mr. President, Ladies and Gentlemen: I have been very much interested today listening to the discussion of the difficulties your Connecticut people have to deal with and find your troubles are not unlike ours in New Jersey, and I have listened not only with pleasure but with instruction to what has been said. I have learned quite a number of things that I expect to make practical use of later on. I have been particularly pleased to find an absolutely unanimity of opinion in regard to the question of kinds of fruits and that everybody seemed to believe there was no fruit that was anything like that grown in New England and I think nothing has been presented that gives me personally any evi-

dence that any New England fruit is any better than that of New Jersey, and until stronger evidence is presented to me I shall keep on thinking that New Jersey grows as good a fruit as anything grown in New England and if New Jersey grows as good fruit as is grown in New England, why then, of course, it is as good as that grown anywhere.

PRESIDENT EDDY: We have with us the Secretary of the National League of Commission Merchants of the United States, Mr. A. Warren Patch, of Boston, and I am going to ask him to speak to us.

MR. PATCH: Mr. President: I ought to bring you the greetings of the commission merchants in all the commercial centers and more of it, for I think you need us and we need you. You grow the fruit; we sell it and often-times can help in relation to what fruit or variety is most in demand in certain markets. There should be co-operation between you and the merchant. These annual gatherings are of immense value to the members of this association. You get together, you co-operate with your neighbors at home, your neighbor in the adjoining state or some distant state, but don't lose sight of the fact that Connecticut is as good a state as any and that you can grow fruits here that with due care will show you as much net money as is shown in any state. Where is there a more interested Horticultural Society than yours, where can you go and find the members more ready to learn that which will benefit them? Another thing, I am mighty glad to see so many young men. If I dared I would say to you fathers and mothers, make the farm and home of interest to your sons. This association has been blessed in having a member totally unselfish, one ever ready to give of his own gleanings. What an amount of thinking will be aroused by the splendid talk of Mr. Cox this afternoon.

I would like to compliment the state of Connecticut on the excellent production of fruit as shown by the exhibit in the room below. You have the land, you have the ability and from the large audiences at these meetings it goes to show that the members have strong desires to learn fully about growing the best fruit, something that the best trade wants.

The question of growing quinces was raised. From my own experience I should say grow them, if \$1.25 to \$1.50 per bushel will pay you for your efforts.

And when you have co-operated with everybody and have gone down the entire line of available timber, ninety per cent. of you have overlooked the best fellow in the whole list—your “silent partner.” By silent partner I do not refer to the fellow whose name appears in the back of the ledger. The fellow who is interested financially only, who drops in occasionally to see what the chances are for a dividend. I mean the one whose heart and life are invested with you and your enterprises,—that’s your good wife.

Co-operate with your wife in her home and in her social life and let her co-operate with you in your business life. She is a partner in this financial vessel of yours, of which you are captain and mate, engineer and pilot. She is not only a partner but she is a passenger, and you keep her down between decks. She is not only a partner but she is a passenger, and you keep her out of sight. She can’t see out. She doesn’t know whether you are facing rocks and reefs or are running out into deep quiet waters, whether a storm is brewing or you are sailing under soft June skies. Tell her something. She knows a lot more than she is given credit for. You often tell your neighbor more than you tell your wife about business. Let her in on some of your deals; tell her how the land lies and teach her the points of the business compass. Some day it may happen that a wreath hangs from your door and the notice in the evening papers reads, “Kindly omit flowers.” She may be called upon to take the wheel. See that she knows something about the handling of the ship. It will reflect to your credit if she does, and may prevent disaster to those for whom you have worked for years.

If these conventions never did anything else than form friendships, they would be worth many times their cost. There are other things besides dollars. There are little green resting places besides the “long trail” that money won’t compensate for the loss of, and these conventions are one of those “green spots.” Mr. President, ladies and gentlemen, I thank you. (Applause.)

PRESIDENT EDDY: Although our neighboring city of Springfield had a "hot time" recently it did not result in putting our friends of the New England Homestead out of business. One of them is here with us tonight and will speak to us. I introduce to you Mr. Edwin C. Powell of Springfield, Mass.

MR. POWELL: Mr. President, Ladies and Gentlemen:

We did have rather of a "hot time" in Springfield, but it takes more than a fire to down us. The Homestead was a little late in coming out last week and came out in rather different form than usual, but it came out just the same and is going to do it right along from now on.

I am glad to be down here with you again this year at your annual meeting. I am pleased to see so fine a collection of apples downstairs, as well as here upon the stage; there are apples here that have come several thousand miles in order to show you Connecticut people what good apples are—I don't want to cast any reflections upon them—but I think they sent the wrong samples, for there is something lacking in the flavor, and after you have tasted them you feel as if you would like to eat a *good apple*, and when you want a good apple you want to get one grown in the New England states.

Regarding the package: The fact is the box is going to be the common package for fancy apples, and that is the kind of apples you are all going to grow, isn't it? You ship apples in anything from a cement barrel to a pork barrel and then wonder why you can't get more than \$1.25 a barrel. You can't get a better package than the box, in my mind.

The Smithsonian Quartette, composed of ladies and gentlemen, was next introduced and sang "I Drink to Thine Eyes." Their excellent rendering of the song captivated the audience and they were heartily applauded, responding to an encore.

PRESIDENT EDDY: I want to introduce to you Mr. H. B. Fullerton of Huntington, L. I., who has been doing some experiment work down on Long Island. Tomorrow he is going to tell us what he has done down there, but now he will say a few words of greeting.

MR. FULLERTON: Mr. President, Ladies and Gentlemen: I don't exactly know why I am called on tonight to speak to

you, but in the first place I will say to you that I had the honor of being born in that state which has furnished most of the presidents—Ohio, and in my mind it is the one state in the United States in which to raise apples; and now I live on Long Island and we raise presidents down there—"Long Island Teddy"; and so it seems I can't help being in a country where presidents come from and that fills me with pride. I have always been filled with pride since I was a boy; always been optimistic. Then, too, I have great pride in being recommended by neighbor Hale. Anything that he starts to push goes; it is a good thing from the time he takes it up, even if it is the Elberta peach, and that is next to the Ben Davis apple; they are both all right as sellers. Let me tell you a secret:—you will succeed in Connecticut in fruit growing if you only get your orchards high enough to get the breezes from Long Island to color your fruit. I thank you.

PRESIDENT EDDY:—We would all like to hear again from our friend Mr. Cox of Ohio.

MR. COX:—I will only say that Ohio has its Horticultural meeting the second week of January. If you think Mr. Fullerton and I are not representative men of the state just come over next year and see some good men.

PRESIDENT EDDY:—Our evening session would not be complete without a few words from our own Mr. J. H. Hale, and I want to call him out now to reply to the compliments of our several visitors.

Mr Hale took the floor and in his unimitable way responded briefly to some of the thoughts expressed by the preceeding speakers.

The quartette sang "Robin Adair" to the delight of all present and then Mrs. Edith Loring Fullerton of Huntington, L. I., was introduced, presenting her illustrated address on "Some Simple Ways of Beautifying the Home Plot." Her appearance was greeted with applause and it is doubtful if the society has ever been privileged to listen to a more delightful and interesting talk on the rural home and its ornamentation and improvement. Mrs. Fullerton is an ardent

lover of nature and in a very entertaining manner she suggested ways of planting to improve the pleasure and comfort of the home plot that are within the reach of all, whether rich or poor. Numerous beautiful pictures were thrown on the screen, showing what splendid effects may be secured with flowers, vines and shrubbery when the proper selection and care are given and when one is truly in love with the work, all calculated to arouse a new interest and thought in this too-often neglected subject.

Mrs. Fullerton told of her success, by simple methods, in adding beauty and utility to her home plot on Long Island, recently reclaimed from unpromising "waste lands." We regret that only a brief summary of this splendid address can be given here.

Simple Ways of Beautifying the Home Plot.

By MRS. EDITH LORING FULLERTON.

I don't know whether it is possible for you of large farms and gardens to come down to the little home plot, but I hope you will come with me for a little while to the spot where we live and have our being, the home. However vast your holdings may be you must not neglect the home plot; you should make it as beautiful as it is possible to do. Someone has spoken today about the husband and wife being partners in the home life and work. With me partnership is a hobby; I think we are not partners in all that the word means in our home life, for no matter what the husband's business may be he should share it with his wife and as she labors to beautify the home plot he should have an interest in that labor of love.

I want to show you a few ways—and they are such simple ways, too—in which this beautifying can be done. My idea and hope is that by the power of suggestion and comparison I may bring to your minds better ways of doing the simple beautiful things. The ways are so numerous that I could not begin to tell you all, but a few of them may help you.

It is wise to plan for a permanent general scheme of shrubs and perennials, native or foreign, and use the annuals to fill in, and by yearly change of annual varieties keep up the in-

terest. Snow-ball, lilacs, snowberries, azalias, deutzia and flowering quince are all valuable. Phlox, lilies, narcissus, lilies of the valley, violets, bleeding heart and peonies each year delight the eye.

Mrs. Fullerton here showed a picture of a road-house, used in the days when George Washington was on Long Island, now beautified by a wistaria vine climbing over it. The speaker did not recommend this variety of vine for use on houses because of its great twisting strength, cases being known where posts and piazzas have been wrecked by it. She suggested the growing of the morning glory over springs or wells to keep the heat of the sun from the water, as well as for beauty's sake; also the placing of brilliant colored geraniums at outposts and steps approaching the piazzas of the house instead of conventional designs of iron and other metal, forbidding, to say the least, to any person wishing to enter.

"In making a garden," the speaker went on to say, "so many people have no method, "just a job lot of flowers and shrubs. You should make up your mind as to what you want; see the whole garden in your mind and then work toward that end. It takes very little time and money to have a pretty flower garden, and much can be accomplished by the person who wills to do it. Suppose you have a bad spot and don't know what to do with it—and possibly you have some bad spots and have never seen them. Go home and find them and do away with them. The picket fence is a bad spot. It takes much time to make it and much paint to cover it. Take it down and plant perennial phlox in its place and have a beauty spot instead of the ugly fence.

"We turned an old tree into a seat and we will have it for many years with us. We put up a little arbor to take the place of an old woodshed, just cedar trees with the branches left on—no attempt has been made for geometric forms whatever—this forms itself into the landscape with the vines growing over it and you would hardly believe it made—a place in which to rest and think. It is covered with clematis, and while that was maturing we used nasturtiums and other vines to cover. A vine running up the chimney or a clematis over a stump would make a picture. It is so easy to change what is not beautiful into a pleasing view if you only make up your mind to do so.

"Vines should be more than ornamental, they should add comfort to the piazza by keeping the sun's rays from scorching. At the same time they should admit sufficient light and air to make the place comfortable. One vine is all right, but when the vine covers everything and excludes the air then it ceases to be good.

"You will have some corners that do not get the sun and you will wonder what can be grown in those nooks. Go into the woods and bring home some ferns—they like the shady places, and there are species of begonias that thrive without the sun; try the Golden Lily of Japan. Then we have another friend from the woods, 'Jack-in-the-Pulpit.' It is seldom brought in, but it naturalizes easily and you cannot help but be pleased with it. And, of course, you know that with but little sunshine you can grow splendid pansies. There is no more beautiful combination than pansies and forget-me-nots; they bloom the second season and your bed will increase rapidly; then, too, try the forget-me-nots and the lily-of-the-valley in a bed together, or in the house in the winter and spring. They are more dainty than you can imagine.

"There is one particularly nice thing about growing vines and flowers, you don't have to wait years for results, as you do in the case of trees. In a very few weeks or months you can transform your plot from a barren nothing to a perfect little garden of Eden. In the early spring there are the crocus, the daffodils and the oxalis that come up quickly and blossom almost before you see them.

"The wild cucumber is a satisfactory vine on account of its rapid growth, one of ours growing 40 feet in one season, and its blossom is of a pretty white feathery form. For window boxes I recommend nasturtiums, begonias and geraniums. For training vines on a porch one of the most desirable effects can be had by using a fish net. Our old friend, the gourd, has been nearly forgotten by most of us. It is fascinating for children, and grown people as well, to watch the development of the gourds as from the blossoms they mature. Just try it this coming summer. Along the side of your grape arbor is an ideal spot for a flower bed; the cultivation of the soil for the sake of the plants will help the vine. After you have

formed the bed it is an ideal place for your house plants, and if you sow sweet peas back of them so much prettier the picture. Five cents invested in morning glories will give you more pleasure than many times that amount paid for many other seeds; the Japanese morning glory is wonderful in fashion and form and is the only picture that I know of having a perfect grey bloom; the blossom looks like a beautiful piece of grey satin. If you have a board fence cover it as quickly as you can, for instance with a Dorothy Perkins rose, with iris at the base. The wire fence, so much used for inclosing chickens, is an ideal place for sun flowers, and as that flower is a portion of the feed for chickens, you can combine beauty and utility; it enhances the beauty of the picture if you plant golden rod at the base. The castor oil bean makes a good hedge. If you have a vegetable garden use this bean to divide it from the flower garden. If you have a low spot just put in some of the marsh grasses and some moss, and if there is water, plant some of the exquisite pond lily. For those of you who have not a farm but just a little city garden, and you have a space for a tree, don't forget the fruit, and don't forget your nuts and don't forget the shade trees.

"The wistaria is a beautiful flowering vine but not adapted for porches, I think. Let it grow on an old tree and you will be surprised at its beauty. Perhaps some of you don't know that it can be made to bloom twice in a season, if the runners are cut back after the first blooming.

"The Persian Lilac probably grows the tallest of any tree used for a hedge, and will become tremendous in size. I have seen one single spray of blossoms that measured 18 inches long. This lilac is most desirable and I would advise you to try it.

"When you plant your garden try and have the flowers run from the earliest blossom right through the season—no matter how few they are—let each month bring its blossoms,—the first to come will be, of course, the crocus, the jonquil or the tulip. Don't fail to sow plenty of poppy seeds; they are prolific bloomers and the blossoms are intensely delicate and the beds are ablaze with color from morning until night, and each morning brings a new lot. It is not necessary for me to



SUCCESSFUL ORCHARDING IN MICHIGAN.

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tell you about the asters. Everyone should grow them; they are so satisfactory in many ways, needing little cultivation and blooming so freely and so long, way into the frosty days, as do also the chrysanthemums. When your garden has finished its work out of doors don't drop it; keep it up in the house; keep the beauty growing inside, and let it never be said of your home,—'there is not a flower growing outside or in.' "

Another selection was rendered by the Smithsonian Quartette.

PRESIDENT EDDY: We are fortunate in having with us as our guest the Secretary of the Michigan State Horticultural Society, Mr. C. E. Bassett of Fennville, who is also one of the most successful fruit growers of Michigan. He is going to tell us something about orchard methods in Michigan and will illustrate his remarks with lantern slides.

(This address, which occupied over an hour, covering in a very interesting and instructive way the methods practiced by the best growers in the famous Michigan fruit belt, peaches, cherries, berries, grapes and apples were touched upon by the speaker and a great many splendid slides were shown, illustrating the planting, culture, picking, packing and marketing of these fruits. It was a wonderfully instructive lecture for every Connecticut grower. As it is impossible to reproduce Mr. Bassett's pictures, we can give but a brief summary of the more important points brought out by the speaker.)

Orchard Methods in Michigan.

By CHAS. E. BASSETT, Fennville, Michigan.

Being a commercial peach grower in the Michigan fruit belt, I shall only attempt to give you briefly the common principles and practices of the leading growers of our section. We attempt no fancy methods—every dollar expended and every hour's work devoted to the business is looked upon as an investment. With most of us peach production is a "bread and butter" affair. Your own experiences with local conditions

will enable you to judge just how far our methods can be followed in your several orchards.

Soil and Location.—While a good loam is our ideal soil, we have good orchards on all kinds of soils. We do demand, however, that all peach lands shall be well drained, both as to air and water, and, as moderate elevations tend to furnish both a good air circulation and water drainage, high or elevated lands are preferred.

Preparation of Soil.—The ground to receive our baby trees should be well stocked in advance with suitable food to give them a vigorous start. Plowing under clover or other nitrogenous crops, before setting the trees, furnishes humus, which is especially valuable in making the ground spongy—capable of holding large quantities of water.

Varieties.—The choice of varieties is largely a local matter. Select those which do best in your locality and which supply the demand of your market. The large plantings of peach in Georgia, Texas, etc., have caused us to discard the early varieties, especially the clings. In our section the best commercial orchards include such varieties as the Yellow St. John, Engles Mammoth, Conklin, Fitzgerald, Elberta, Kalamazoo, New Prolific, Smock and Salway—all yellow varieties. The Champion is one of the leading white kinds, but our market calls for large, high colored, yellow peaches. Such kinds as the Barnard and Gold Drop are excellent in quality, but are too small, under ordinary cultivation, to be wanted by our buyers. Despite its poor quality, the Elberta is the leading market peach and is most largely grown.

Cultivation.—Our main object being quick and large cash returns, we do our utmost to force a strong, sound growth from the start, by intensive cultivation. The first two years we generally practice the growing of corn between the trees. The loss of fertility, occasioned by the feeding of the corn, is balanced by the value of the corn as a shade to the trees from the scalding rays of the sun. The trees are headed low—not over 18 inches from the ground—and this calls for special tools in cultivating. The extension disc harrow and the extension fine tooth drag are the best tools we have in our orchard, after the second year, when the trees are given the whole of the

ground. Cultivation must be kept up continuously, to save soil moisture and make more plant food available, by bringing the particles of soil in contact with the air.

Pruning.—We prune at any time during the dormant period, preferably in March, after the hardest freezes are over. Many claim to get good results by spring or even summer pruning and one of the most productive orchards I have ever seen has always been pruned in the fall! However, I am inclined to attribute the results in the latter case to the severity of the pruning rather than to the time when it was done. Much of the thinning can be done by severe pruning, but even after that has been done, the expense of picking off the surplus peaches by hand will often be considerable. This thinning is essential and must be done *before the pit hardens*. The production of seed is a most exhaustive process and the tree should be given all possible relief, by reducing the number of fruits. This results in stronger and longer lived trees, larger sized fruits and doubled profits.

Diseases and Insects.—Curl leaf develops during cold, moist weather, but a thorough spraying of the dormant trees in March with a solution of two pounds of blue vitriol (copper sulphate) to fifty gallons of water is a sure preventive. "Yellows" and "Little Peach" are deadly diseases, the cause of which we know absolutely nothing. There is no known cure and the only safe course is to cut down and destroy by fire all diseased trees as soon as discovered. This course has held these diseases in check. Do not waste time with these diseased trees, if you desire to stay in the peach business. Experimenting with them has cost many a grower his entire orchard. The annual "grubbing" of the base of the trees, to destroy the borer, is also necessary—sometimes twice in the year.

Fertilizers.—Stable manure is all right to secure rapid growth, but its continued use in large quantities produces wood that is soft and tender. However, in our exclusive fruit section we do not have enough stable manure on our farms to do any great damage. Fertilizers that are rich in potash and phosphoric acid are most valuable, such as unleached hard wood ashes and ground bone. We have had to resort to the

use of commercial fertilizers, the foundation of which is usually muriate of potash and ground bone from the packing houses.

Cover Crops.—About the last of August we sow a cover crop through the orchards. Oats have been the most satisfactory with us—two bushels or more to the acre—although the sand vetch forms an excellent cover crop. This crop robs the trees of their feed at a time when we want them to stop growing and ripen up their new wood. It also acts as a blanket to hold the leaves and snow, preventing deep freezing and bare spots on exposed knolls. Clovers would be even better cover crops, as they also furnish considerable plant food, but they have to be left too late in the spring to get much growth and they are then robbing the trees of food at the time when the trees should be making their best growth. We also find it difficult to get a catch to clover under large bearing trees.

Finally, adopt the most intensive methods, which will produce the largest, handsomest and best specimens; pick and pack them carefully and as near ripe as your market will permit; pack honestly, so that you can guarantee every package; market through some co-operative system that will eliminate as many middle men as possible and you will find a neat balance on the right side of the ledger in the end.

Now to summarize, this is what I might call "*the peach grower's creed*":—

We believe in budding on vigorous, healthy stocks, from bearing trees of known good qualities.

We believe in pruning, thinning, spraying, cover crops, and that the peach trees should have entire possession of the land.

We believe that an orchard must be fed as well as its owner.

We believe in high tillage. No soil is so rich that it does not need working.

We believe in "War to the knife, and the knife to the hilt" against San José scale, yellows, little peach, leaf curl and borers.

We believe that pests are grindstones and whetstones, to sharpen the peach grower's wits. Without them, any fool could grow peaches.

We believe in "A merry life and a short one" for the peach tree. Better that a tree should "wear out than rust out."

We believe that quality and not bulk measures the fitness of a peach to eat, and therefore the value of a variety.

We believe in good fruit, good grading, and good honest packages. There is only a change of one letter between *cheap* and *cheat*.

We believe in advertising our wares, for—

"He who whispers down the well,
About the goods he has to sell,
Does not reap the shining, golden dollars,
Like he who climbs a tree and hollers."

We believe in smaller orchards and better care. Large orcharding is not always the best orcharding, and small orcharding is often the largest.

Lastly, we believe in every man proving all things for himself, and in his holding fast to that which he finds good.

Several questions were asked and answered and with this discussion the evening session was brought to a close at 10.45, all agreeing that it had been a most enjoyable and profitable meeting.

SECOND DAY, THURSDAY, FEB. 7.**MORNING SESSION.**

The second and closing day of the Society's annual meeting was called to order at 9.30 a. m. by President J. E. Eddy. The attendance included many who had been unable to be present the first day and interest in the proceedings continued unabated.

A discussion of the question list was first in order.

Question No. 12 was called for, "What is the future for cherry culture?" Mr. J. L. Rice of Massachusetts, a cherry grower of some experience, was invited to open the discussion.

MR. RICE of Massachusetts: I have grown a few cherries for quite a number of years,—the large white cherry. One tree, a May Duke, lived and bore 25 years and we picked from that one tree four bushels. I had another variety, a sour cherry; they did very well for a number of years. In 1898 I set 100 trees that I supposed were all of a good variety; only 25 proved to be Montmorency cherries. One day I went into the orchard and saw a ripe cherry about the size of a cherry pit and I thought if they were all like that they were fit for nothing. A few days after that I was in a market and saw raspberries selling for ten cents a pint and I thought I would try my little cherries. In a few days I took an order in to the market and they were so attractive and satisfactory I sold them all for eight cents a pint.

The next year we had about ten bushels that we sold for about the same price, and the year following we had 20 bushels. Some trees we picked 32 pints from. Last year we gathered 30 bushels, and we put them in quart baskets because the pints cost just about as much and it takes more cherries to face up the pints than the quarts. None of the quarts sold for less than 12½ cents. I consider the cherry crop a profitable one. We cultivate the orchard the same as the peach orchard and fertilize it a little. My trees are set 13 x 13, but that is a little too thick; 13 x 18 or 15 x 18 is better.

A MEMBER: Do you leave the stems on in picking?

MR. RICE: Yes. I think the only cherry we can raise is

the sour cherry; they bear naturally and do not have to be grafted, and they will crop every year. I have a nice sweet cherry tree that will blossom out full and then perhaps not, the frost but something else kills them. I do know I can raise English sour cherries at \$4 a bushel and make good money at it. We have never found any San José scale on the cherries.

MR. WHEELER of Massachusetts: There is a cherry orchard near my home of perhaps a hundred trees, about 35 years old, all sweet cherries, three varieties; these trees have always been in sod, never cultivated. They are high growing trees, some being from 35 to 40 feet tall, and that makes picking the fruit difficult. Those trees pay the owner at the rate of \$10 a year, giving him a continuous crop the last 15 years since he has been on the place.

MR. ROBERTS of New Jersey: I am interested in the cherry question. With us that fruit is an important one and has a good market. The beauty of the cherry is that when we have half a crop the market will take the entire crop at a big price, and when there is a big crop the market will take them at fair price. I think we should grow more cherries.

MR. BASSETT of Michigan: In Michigan the Montmorency is the leading cherry of the sour variety; it is certainly a winner with us. The Early Richmond is also one of the old standbys, but the English Morello is one of the most difficult to control by ordinary growers on account of the difficulty in saving the foliage. Some first-class growers are successful in controlling the injury to the leaf by thorough spraying and keeping the foliage sprayed most of the time. In our section, to make it clear, fruit growing is a profession. We don't do anything else; we don't raise corn or any other crop, and when you make a specialty of any one thing you can do much better with that business than when you try it as a side issue.

PRESIDENT EDDY: There is an opportunity now for further questions and I hope the members will improve the time.

MR. COX: Is there not a lot of difference in the varieties of apples in regard to being troubled with the codling moth?

A MEMBER: That has been my observation in my work. I think the Ben Davis apple is one of the worst varieties for that trouble.

MR. STONE: I am an advocate of the Ben Davis. I have sold it for \$5.50 a barrel in the market. It is a salable fruit. I don't claim there is quality, but you take a Ben Davis on the top of the tree, nicely colored and I don't believe there are many varieties that will equal it in looks. There are many varieties that are no better than the Ben Davis; and not half as good as far as keeping quality and looks are concerned.

The first topic on the program of the session—the San José scale—was then taken up and being the most important subject now before the growers of the state, received careful attention.

PRESIDENT EDDY: We have with us an authority on the San José scale, and I take pleasure in presenting to you Professor John B. Smith of New Brunswick, N. J., entomologist of the New Jersey Experiment Station, who will speak to us upon that subject.

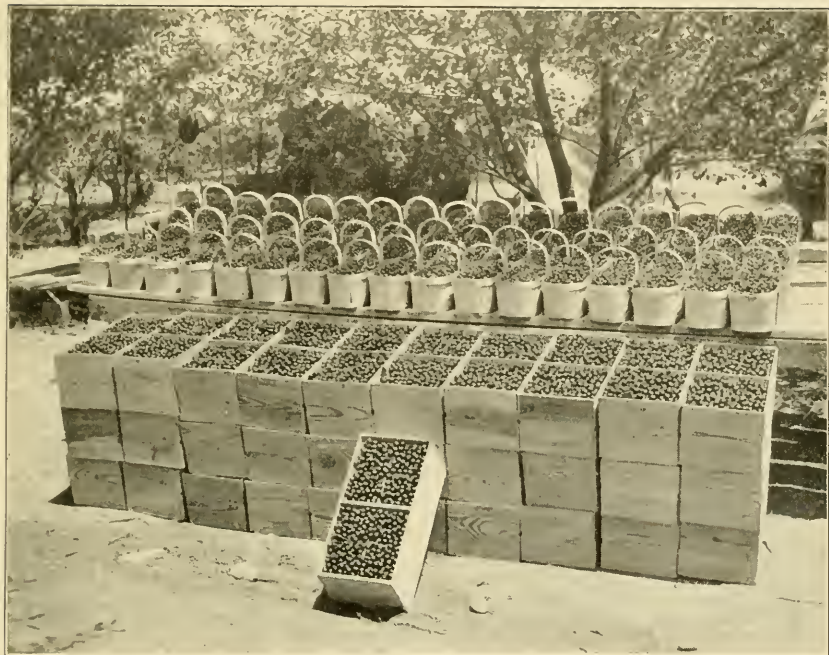
The San Jose Scale Problem.

By PROF. JOHN B. SMITH, New Jersey Experiment Station.

In getting ready to deal with any problem it is always well to look at it from all sides and to be sure you have all the factors clearly and accurately before you.

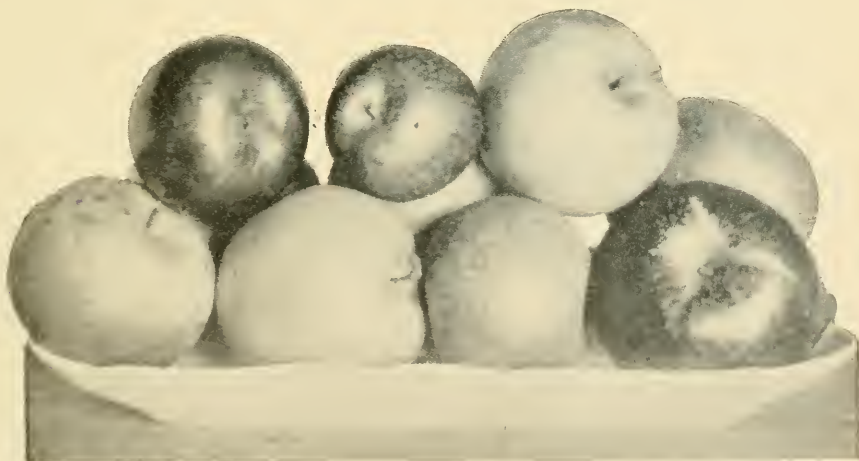
No two persons look at any set of facts in exactly the same way, and the features that appeal to one may seem absolutely unimportant to another. And so, in this matter of dealing with the pernicious scale there are some who, finding a material that does apparent good work, devote all their time and energy to developing that one thing, refusing to look aside for others. We have, as the result, a dozen formulas for the lime and sulphur wash and as many ways of preparing it. There are others who are not satisfied with pounding away in the rut and who try to work out something better; either in effect, in ease of application or in all around economy. To such investigators we owe our knowledge of the use of petroleum

PLATE III.



MONTMORENCY CHERRIES READY FOR MARKET.

Sour Cherries in Michigan pay well. They are often grown on light drift sand, well mulched with coarse manure, litter and grape vine trimmings



SOME BEAUTIFUL SPECIMENS OF "THE KING OF FRUITS."

The most up-to-date Orchard Methods are necessary to grow such Fruit as this.

oils, miscible or undiluted and the preparation of commercial insecticides, that facilitate the work of the gardener and the man who has only a few trees and plants to deal with.

It is well for the fruit grower to look at the work of both classes and to decide for himself just what course is best for him under the circumstances as they exist in his particular case.

And then it must not be forgotten that there is no absolute uniformity in the composition of the fruit growers that form the entomologist's constituency. There are some men who never count personal labor as an element of cost and do not consider comfort or ease in application. Such men usually look only to the actual money outlay as determining the cost of an application. There are others who desire to reduce labor to a minimum and who find fault because the entomologist will not recommend a six-inch band of some material put around the trunk breast high, to be absorbed into the circulation so as to reach the insects set at the extreme tips of the twigs. Such men usually fall ready victims to the plausible agent who bores holes in trees, puts in a magic compound, plugs up the whole and, on receipt of a dollar will guarantee to keep the tree clear of insects and disease for from 1 to 3 years. He will make it five years if you urge him hard enough and he might just as well make it ten, because his guarantee is worth just as much at the end of ten years as it is at the end of one.

Between these extremes are those men who count their labor and the wear and tear upon themselves, the help and the machines as part of the outlay, who consider not only the actual money cost of materials, but the spreading power of the product, and who in their practice look to the expense as shown in the final result, not in the gallon unit.

Before stating the insecticide problem definitely, let us consider very briefly the life history of this pernicious scale, the character of its injury and the reasons why it is so difficult to control.

The full grown female as found on the trees about the middle of June is a round, flattened, disc-like grub, without legs, yellow in color, covered over and concealed by a dirty gray or blackish parchment like tissue of its own secretion:

this covering is the real scale: the creature beneath it is the "louse" or scale insect. About the middle of June this female begins to give birth the living young—four, eight, a dozen a day, according to temperature, and this continues for three or four weeks. The young are also bright yellow, just visible to the unaided eye, with six well developed legs and a pair of feelers. They move about actively for a day or two, rarely get very far away from their place of birth, unless they are carried off on the feet of birds or by other insects, and when they have found a suitable place they come to rest, insert their slender hair-like lancets into the plant tissue and begin to suck. In a few hours they begin to change form, become round and disc like, a fine waxy covering begins to appear and before a night is over a white scale or covering conceals the insect. This white scale becomes creamy gray within a week, then black at the end of two weeks and in about a month, when the insect is sexually mature, it is dirty gray. There is a difference now between males and females. The males become winged, get out from beneath the scales and seek the larger scales beneath which the females remain, grub-like and totally motionless except for the continual pumping of sap. The males are short lived and do not feed.

In about five weeks from the date of birth reproduction begins, and as the period extends to more than a month and new females are coming in every day; there is no time after mid-July when larvæ cannot be found on an infested tree. The height of the breeding is in mid or end-September, when badly infested trees sometimes appear as if dusted with pollen, so numerous are the crawling larvæ. After the beginning of October matters slacken gradually, some larvæ being found in New Jersey as late as December, and in the Southern States and in California throughout the winter.

It has been calculated that a single pair of the insects, starting early and continuing late, might produce a progeny of 1,000,000,000 in a single season. Which explains the rapid infestation of trees where only "a sprinkling" was observed early in the season.

Breeding slackens early in October, although some females begin after that date; but no female that begins breeding in

fall survives the winter to resume in spring, even though she bring forth but a single young; and no young that set after the sap ceases to circulate in the tree ever reach reproductive condition. Only those that set in early to middle October—perhaps late September here—resume growth in spring. The males issue early in June and by the middle of that month every female is in the larva business.

Each sucking insect extracts from the tree a tiny droplet of sap, and the thousands that infest it mean a perceptible drain on the vitality of the plant. But that is not all: at every feeding point there is also introduced a tiny droplet of saliva which may cause a purplish discoloration and does cause interference with the functions of the plant cell, so that a badly infested tree which has maintained a good showing throughout the season often finds itself unable to start again in spring; and then the fruit grower is likely to blame the insecticide for the condition. Occasionally a tree even starts from the stored material in the buds, and when that is exhausted it wilts and dies, simply because the poisoned bast cells will not carry the sap.

The minute size of the insect enables it, in the larval stage, to get under leaf and bud scales; in the plant vestiture and under any sort of loose scales of bark on the trunk, branches or the extreme tip of the tree.

Now here is our problem. We must apply to a tree that may be 20 feet high and 30 feet in diameter some material that will reach and kill every insect on that tree, for if we leave even one pair, next fall may give us 1,000,000,000 as their descendants; and you will see at once that our problem divides into two parts—the material that kills, which it is the entomologist's business to provide, and the mechanical task of applying it, which is none of his business, strictly speaking, but which has been saddled upon him by force of circumstances.

Let us consider first the insecticide matter. There is only one period in the life of the insect when it is not protected by a scaly covering—the day or two just after birth, while it is crawling about looking for a place to set. This stage is during the period when the trees are full of foliage and when the mechanical task of reaching every twig and branch is well

nigh an impossible one. But we have made possible so many impossibilities that even this might be surmounted, were it not for the fact that the young do not come all at one time and that by the time he last one is born the first lot are almost ready to breed in turn. Now, while we can very easily kill the crawling larvæ without harm to tree or foliage, the same mixture would not be equally effective against the breeding adults and we have nothing yet that will kill adults without harming foliage and even shoots and branches. To get the insects in the larval stage, therefore, would mean spraying at least every other day for a period of at least three weeks—an obvious impossibility in an orchard.

We are reduced therefore to dealing with the insect in its dormant state while the trees are themselves dormant and free from foliage. And we must reach a very soft, helpless insect under a very tough scale covering, closely applied to the surface of the tree. Easy enough to kill the insect; but to get at it first is the difficulty. The material forming the scale resists penetration by all ordinary caustic and acid applications not also dangerous to plant life, and we must get at it, therefore, by some substance that acts on the insect with a margin of safety for the plant.

We have at our disposal the choice between corrosives, that act first on the scale covering and then on the insects, and penetrants that leave the scale intact and forcing their way through, act directly upon the insects.

Types of the first are whale oil soap and the lime and sulphur mixtures; types of the second are the mineral oils, crude or refined, undiluted or mixed with water.

Whale oil soap has had its trials, its limitations are well understood and while it has done and can do satisfactory work, the cost has excluded it from practical consideration of late years.

The lime and sulphur combinations are all of them extremely caustic, all of them absorb water from the surface on which they are applied, and act first by loosening the hold of the scale covering upon the surface of the plant. Just what happens afterward is yet a matter of some question; but at all events slow decomposition of the sulphide of lime begins and

in the course of this poisonous gases are formed that find ready entrance beneath or through the loosened scale.

It will be noted in this connection that in order to exercise any effect at all the material must cover the scale and this point should be well marked.

A few words about these lime and sulphur combinations may not be entirely amiss, even from a Jerseyman, for they have their advantages, especially on peach trees, and we have tested about every kind of mixture that has ever been proposed.

In its perfect form the lime and sulphur wash is a combination by heat of approximately equal parts by weight of sulphur and lime, forming what may be roughly called a sulphide of lime. If I take 1 pound of fine sulphur and 1 pound of good lime, add water enough to slake and boil over a fire; I get in time a union of all the sulphur with as much lime as will combine with it and I will have a little lime left over as milk of lime or white-wash. If I use two pounds of lime I get no more sulphide of lime, but I get a great deal more whitewash, which adds nothing to the killing quality of my wash, but makes it thicker, harder to apply and really less effective because it does not get into crevices so well.

If I don't like to boil the wash with fire or steam I can get the heat some other way—as, for instance, with more lime. That is, I can use the heat formed by the slaking of 2 pounds of lime to unite the third pound of lime with one pound of sulphur—and then I will have even more useless lime in the combination. Or I can use caustic potash or sal soda to furnish some of the heat. In any case, what I want to impress upon you is that any one gallon of sulphide of lime combined by heat is the equal so far as insecticide qualities is concerned of any other gallon, no matter where you get the heat—coal, wood, lime, potash or soda—provided you get enough, so as to cover small spaces not actually hit. The pounds of lime and one pound of sulphur into a cold barrel, put in cold water enough to slake and commence to stir with a hoe; you will first warm up your water, then your barrel, next the air round about, and if there is any heat left you may get a little of the sulphur into combination with a little of the lime; but the bulk of your result will be white-wash with a

mechanical mixture of sulphur, which is about as nearly useless as anything you can get.

If you warm your barrel with hot water, use boiling hot water to slake the lime and cover your barrel during the slaking, stirring only when necessary; then the heat from your three pounds of lime will be sufficient to combine one pound of sulphur and if all the precautions have been observed, your self-boiled mixture has cost you just as much as if you had used coal or wood. But you do away with the boiling outfit.

As I said, we have used in New Jersey all types of lime and sulphur wash and during 1906 we have had the most gratifying success and the most discouraging failure with every one of them. As to the causes I will speak later.

Crude petroleum, undiluted, as against scale, was first used by a Jerseyman with good success on apple trees and he hurt none of his trees and killed the scale.

It seemed and was a simple proposition. I had been brought up to the idea that petroleum was fatal to plant life and I tried it timidly on one badly infested pear tree. It worked perfectly against the scale and the only material influence it had on the tree was to make a standard out of a dwarf. It proved to be really a stimulant for pear trees on further trial and I used it on other trees and went down into the oil fields to see what oil did on vegetation that grew round about. I came back full of faith and I told our folks about it. A great many tried it and were successful and a great many tried it and failed: that is, they killed the insects fast enough; but unfortunately the tree went also and then they accused me of owning oil stock and trying to enhance its value by inducing them to use oil. Now the only thing I regret in this accusation is that it wasn't true. I never had money enough to buy any of the stock and Mr. Rockefeller never heard enough of the new outlet for oil created by me to offer me any shares or even a professorship in his university.

But there was one point which no one disputed—crude oil would kill every scale with which it came into contact, and because of its penetrating power crude oil would reach more insects with less care than any other material and would remain longer on the tree—and there was the rub. It remained so

long that it sometimes killed not only the scale but the tree itself.

This led to further studies and experiments and we learnt a lot about the insects and about the oil. Crude oil as it comes from the soil contains a great lot of products ranging from the lightest naphthas to paraffine and vaseline; there were almost as many different kinds of crudes as there were wells; certainly no two fields produced the same sort of material.

Without going into the details of experiments, it was found that to be tolerably safe as an insecticide the crude oil would have to test no heavier than 43 degrees on a Beaume oil scale. Using an oil of that kind on a dry day on a dry tree not below freezing in a fine forcible spray, a thin coating of oil would be applied that would penetrate into every crevice, between plant hairs, under bud scales, and, in fact, everywhere on the tree:—and indeed it would “crawl” wherever there was material enough heat to form your combination. If you put three light naphthas would penetrate at once under and through the thin edges of the scales and would come into direct contact with the insects, carrying enough vaseline to choke, where they did not at once kill. And then these light oils would evaporate and would leave the heavier products which continued to spread and penetrate until nothing was left except the vaseline and paraffine. This it was that gave the tree its dark, greasy appearance and upon which the moisture would stand in beads, weeks afterward. It was at first considered a distinct advantage; but it was found after a time that, dense as it was, the vaseline still continued to penetrate until it was all gone, and if there were not enough dead surface cells to take it all up it would get into living cells, killing all that it entered.

When carefully used on apple and pear, and especially where the oil was first warmed a little, most excellent effects were obtained and we have orchardists in New Jersey today who rely mainly on crude oil to wipe out the scale where they have allowed it to get a little ahead of them. They know it will do the required work and they know exactly where the danger lies—and they avoid it. Some of the best crops of apples that were raised in New Jersey last year came from trees

that had scarcely a salable apple the year before and were treated to a dose of crude oil in early spring. And the apples were clean, too, on the whole.

On peach and plum the results were not so good and many trees were killed or badly injured and so we tried to get away from the vaseline and paraffine, and used kerosene instead. And here, too, we were successful and unsuccessful, *i.e.*, we could always kill the insects, but not always with safety to the tree. Our directions were explicit enough—apply on a dry day to a dry tree in a fine, forcible spray, using only enough to cover:—but not all fruit growers understand English, some never read directions anyway until *after* they have gotten into trouble and we were still away from our hunt for a safe, reliable scale-killer. But there is left with us a remnant of men who have learnt to use kerosene, who are satisfied with the results obtained and who are not willing to abandon it.

And then came the emulsions and the emulsion sprayers and the kerosene-limoid mixtures—all of them attempts to mix mineral oils with water so as to make a given quantity of oil cover a greater surface. A great many men never really understood what this lime or limoid was really intended for, and that it was really a carrier only to break up the kerosene or other oil into particles that could be more widely spread and so form a thinner coating. It was the oil that did the work and when there was enough oil, properly used, the mixtures were successful—otherwise not: and when the mixtures were imperfectly made harm was done to trees as when undiluted oil was used and the insects escaped elsewhere as when sprayed with water only. Emulsion pumps were excellent—theoretically—but practically they did not come up to expectations. One or the other of the pumps would get out of gear, or become a little clogged and the proportion of oil and water would change almost in a minute from pure oil to pure water, with disastrous and discouraging results. But even here good results were the rule, and through it all stood out that one great fact that even a very small percentage of oil would kill the pernicious scale if it was brought into contact with it.

There are only a few chemists who know very much about mineral oils and I am not one of them. But I knew exactly

what I wanted and I was quite ready to tell any one who could work out my problem, and I asked for a petroleum oil so treated as to be soluble or miscible in plain water without making into an emulsion or any previous preparation in the hands of the farmer.

And so I got into correspondence with a number of manufacturers of insecticides and their chemists and the first product was "Kill-O-Scale," prepared by Dr. P. Karutz for a Baltimore firm, and that was excellent but too high in price. And then Dr. Karutz prepared for me a number of different oils, all of which were given a test. And the B. G. Pratt Company of New York also began to experiment and emulsified for me Texas oil, asphalt base oil, paraffine base oil and I had half a dozen different kind of soluble preparations out of which "Scalecide" was finally evolved.

Now I don't mind admitting that in my official capacity I am to a large degree responsible for the production of "Scalecide" as it stands today; but I regret that I must confess to a woful lack of business ability in that I failed to secure for myself even a penny-worth of commercial interest in it. I know that I am credited with a greater business sense and that my advocacy of the soluble oils is charged more to a desire to line my own pockets than to benefit farmers; but then I have met this suspicion all my official life and am still living on my salary only.

Since that time Dr. Karutz has perfected "Target Brand" emulsion for the American Horticultural Distributing Company, and yet more recently a "soluble oil," for the Thomsen Chemical Company of Baltimore.

All these "soluble oils" are based on a petroleum "distillate" from which all the paraffin, vaseline and lighter naphthas have been taken. It will be remembered that we found the vaseline to be the real source of danger in the undiluted crude, hence in the soluble oils it is eliminated altogether, and its place is taken by a vegetable or animal oil which is more or less completely mingled with the mineral oil.

"Kill-o-Scale" and "Scalecide" are very similar in composition and are based on brown oils, carrying all their natural sulphur. To "Kill-O-Scale" additional sulphur is added; to

"Scalecide" nothing is added, but the amount of mineral oil is increased. "Kill-O-Scale" has about 65 per cent. of actual mineral oil; "Scalecide" between 70 and 75 per cent. Roughly speaking, both of these are liquid petroleum soaps which dissolve readily and completely in water.

"Target brand" is an emulsion or mechanical mixture of about 65-70 per cent. of mineral oil with about 20 per cent. of a heavy vegetable oil and the distillate is a white one more like the ordinary fuel oil in appearance.

In addition to the oils there is from 10 to 15 per cent. of water and alkali in these combinations and this leads to a chance for a little mild trickery. When a circular tells a farmer or fruit grower that a given mixture contains 90 per cent. oil, the farmer is apt to assume that he means petroleum or mineral oil; but what is really meant is that there is not over 10 per cent. of water in the combination and there may not be, actually, more than 50-60 degrees of petroleum.

Using "Scalecide" as an example, if the material is what it ought to be, you can pour one ounce of it into 20 ounces of water and it will immediately begin to dissolve and to turn the water a milky white. With a little stirring the material dissolves completely and leaves absolutely no sediment and no scum. It is a perfectly homogenous mixture and every drop of it is of equal value as an insecticide. Only about $3\frac{1}{2}$ degrees of the mixture is actual petroleum and not 5 per cent. is oil of any kind, and yet this mixture thoroughly applied will kill every scale it touches and has actually cleaned badly infested trees so completely that not a living specimen could be found the season following. But it required more than one treatment to accomplish this result and we have found that under ordinary orchard conditions and in ordinary hands the 1 to 20 dilution is not sufficiently reliable; but at the rate of 1 to 15, giving approximately 5 per cent. of actual mineral oil the results are good in proportion to the care and thoroughness with which the work is done.

There are two reasons why the weaker mixture is not always nor entirely satisfactory. If it is put on sparingly there is not oil enough to penetrate a densely set mass of scales so as to reach all in the lower layer and there are apt to be missed

places. If it is liberally but not forcibly applied it may roll over without penetrating places partly sheltered or covered with plant hairs and the amount of oil is not sufficient to give its penetrating powers a chance to act. If we remember that in using the "k.-l." or mechanical mixtures we recommend from 15 to 20 per cent of actual oil we must not be surprised if $3\frac{1}{2}$ per cent. sometimes fails, nor deem the requirement of 5 per cent. unreasonable.

And now some words on the mechanical problem. Neither the lime-sulphur nor the oil mixtures kill anything that they do not touch:—all are truly and strictly contact insecticides. Given a peach tree, with smooth or slightly roughened bark, there are few sheltered places where a scale is protected. Spraying with lime and sulphur it is easy to cover completely, and whenever everything is white the work is thoroughly done. The trees are not so large as to make it difficult to get to all parts of them with considerable force and the scales get the full benefit of the application. Under ordinary circumstances, assuming the material to be well prepared the scales are pretty well killed off.

Apply the "Scalecide" 1 to 15 in the same way and you get no better results; but it takes only half as much material to do the work because the wash is thin, can be sprayed with a finer nozzle and greater force, and will spread and get under scales more easily. The cost is a little in favor of the lime, wash, but this is counterbalanced by having a material much less offensive to handle, not so hard on the apparatus and ready for application at a few minutes notice.

In favor of the lime-sulphur, however, is its effect against some of the peach diseases and its almost specific tendency to improve the vigor and appearance of the tree, and this advantage is so great that I usually recommend for peach orchards the lime and sulphur wash.

I might digress here for a moment to say that there can be no cumulative effect on trees from the application of "scalecide" and soluble oils containing no vaseline. The material being completely soluble in water is washed off and nothing remains to be added to by later sprayings.

Given an apple tree of bearing age and considerable size

and the problem is different. The bark in general is rougher: there are more crevices and loose scales. Toward the tips the twigs are hairy and at and around the buds are numerous hiding places and shelter for the scales. At the base of these plant hairs and sheltered by them are numerous half grown scales in just the best condition for successful wintering.

Now spray with the lime and sulphur, wash as before and you will get your trunk and branches well covered as a rule; but here and there a bark scale will be sealed on or a crevice skinned over, and there will be no soaking in or under by the wash; and at the tips, especially toward the top of the tree, the wash will form a coating *over* the plant hairs, *i.e.*, the twigs may be white, but the mixture has not really come into contact with the scales at all. What is the result? When the season is well advanced it develops that the tree is clean so far as you can see; but your fruit is specked with scales—sometimes so badly as to be unsalable. I was in an apple orchard once belonging to a man who preached lime and sulphur, morning, noon and night, and who had done the best he could to demonstrate. But his fruit was a horrible sight and he was ready to give up in disgust. Yet except on the fruit his trees were really very free from scales. It is simply that the material has practical limitations. It does not readily spread nor penetrate and the more lime there is in the combination the less it can do so. With just enough lime, plenty of power behind the nozzle and good judgment on the part of the man doing the work excellent results have been obtained. But the bigger the tree the more difficult the task and the less satisfactory the result.

Let us use oil instead. It is more fluid, soaks under the bark scales and into crevices and if applied with reasonable force it penetrates through the covering of plant hairs. You may miss just as many scales; but they will not be all on the tips of the twigs and the fruit will be better. And if you spray a second time you stand more than an even chance of getting those that you missed the first time. Applied by the same man, with the same outfit, in the same way, Scalecide will do better work than the lime and sulphur wash on apples and I recommend it in preference on large trees. On pear the oil seems to

exercise almost as great a stimulating effect as the lime and sulphur does on peach and therefore I usually recommend it. On plum the lime and sulphur wash does almost as well as it does on peach.

Practically, experience has shown that a well made lime and sulphur wash, with or without salt, and a soluble oil like "Scalecide" diluted with 15 parts of water will serve equally well as killing agents against the scale, properly applied.

Proper application means that the spray must be driven in particles as fine as possible with as much force as can be developed with the apparatus in hand so as to reach into all crevices, under all shelter and through all plant hairs.

The larger the tree the more difficult the task and the greater the necessity of duplicating the treatment.

The lime and sulphur washes are cheap per gallon of spray mixture; they assist in controlling certain peach diseases; they are corrosive to man, to animals, to pumps, hose and machinery of all kinds; they are difficult to prepare properly, require time and outfit and must be applied very soon after they are made. They make spraying a burden and are not likely to appeal to the man who has only a few trees or plants to take care of.

Soluble oil of the "Scalecide" type costs more per spray gallon, but one gallon does $1\frac{1}{2}$ times as much work. There is no time lost in preparation, the material is not offensive to handle, does not corrode skin or metals and does not attack rubber nearly so much. A barrel of material mixed up today can be used tomorrow or the day after and it is more penetrating than any other material that is equally effective. It is a material that appeals to the owner of a few trees or plants and can be used in city and village gardens by any one with any sort of apparatus. While it requires equal care to accomplish perfect work in the orchard it leaves a greater margin for the careless worker because of its creeping and spreading powers. It is not so lasting as the lime and sulphur and should a rain come within 24 hours I should consider re-spraying advisable.

A few words as the time of spraying. The brood that hibernates is that which is born at just about the time when the foliage of the peach is fully ripe and ready to drop. The scale

at that time is yet thin and the insect beneath it small and easily affected. I advise spraying with full winter strength just as soon as possible after the leaves are off or even while a few yet remain. Spraying is more easily done in fall than in early spring as a rule and the weather is apt to be more favorable. If you use "Scalecide" even a drench will do no harm on any kind of tree. If you use lime and sulphur a few sappy shoots of peach may be killed; but not enough to harm a tree materially.

In conclusion, I submit that the entomologist's work in the matter of the pernicious scale is pretty well completed: what remains is the mechanical problem of application, which is not strictly in his line, but for which he has indicated the solution.

At the conclusion of Prof. Smith's valuable address, which was the most comprehensive and helpful presentation of the scale question ever given before the Society, numerous questions were asked and answered.

DISCUSSION.

MR. ARMSTRONG: What varieties of apples attacked with scale are the most difficult to free from it?

PROF. SMITH: The Ben Davis is about as difficult a tree as we have to deal with.

A MEMBER: How about the Baldwin?

PROF. SMITH: I don't know much about the Baldwin; I don't think we grow that variety very much in New Jersey.

A MEMBER: How much lime and sulphur do you use in 50 gallons of water?

PROF. SMITH: Three gallons of water for one pound of sulphur; the formula we use is 50, 50 and 50, of lime, sulphur and salt, the three.

A MEMBER: Does the time of cooking have anything to do with the efficiency of the mixture?

PROF. SMITH: It should be boiled until the lime and sulphur are combined; if you have as much lime as sulphur half an hour of actual boiling is sufficient; as a matter of care, I tell people to boil it for 45 minutes. You can't boil the wash too

long, only that it is a waste of material, and you would be obliged to add water to it to keep it from burning.

A MEMBER: Is there any difference between the flowers of sulphur and ground sulphur flour?

PROF. SMITH: The two are exactly the same in effect; you can use the ground sulphur as well as the flowers of sulphur, but it takes a little more time in boiling to get the combination.

A MEMBER: If you have more lime and sulphur than you can use in one day will it do to use the following day?

PROF. SMITH: If you can keep it warm it might be all right. Until you get a formation of crystals it is right to use; after crystals form it is unfit for use.

A MEMBER: What wash would you use on quince trees?

PROF. SMITH: The same as on the apple trees. I should use the oil; the quince trees are even more hairy than the apple.

PRESIDENT EDDY: Prof. Gulley will now address us on the important question, "What Varieties Shall We Plant?"

What Varieties Shall We Plant?

By PROF. A. G. GULLEY, Storrs.

In at least two classes of fruit the question of varieties is becoming important in this state, viz.: peaches and apples. Perhaps some would include Japan plums, but in both the first mentioned, what shall we plant is continually cropping out. In the peach the question is often put in this form: Is there any danger of planting too many Ellberta? suggesting the idea that we are liable to overstock of that variety. My answer to that is, plant as many Ellberta as can be handled by the force that handles the crop the rest of the season. I consider one essential of a peach orchard is to have a regular even succession of varieties for the full season, at least after good kinds come. No doubt the same force could handle more trees and bushels of Ellberta than of most other kinds and it is very satisfactory to handle and sell.

As a matter of fact, the past three seasons, in my own experience, it has not brought the highest price. That came on very early ones, of course only in a small way and because

that class of peaches has not been planted much recently and the market was bare of home-grown peaches. The evident inclination to run to Elberta might easily lead us to the same point that West Michigan reached with Hill's Chili about 25 years ago. So hardy and profitable were the earlier plantings of that kind that in our section at least for several years about as many were planted as of all others together. A few years later there were a few days each season when the market was much overstocked and prices very low. In the peach, appearance has much to do with its sale. What we need are other kinds coming earlier and later than the Elberta and having some of its qualities. It looks as if the eastern market is following the western in calling for more yellow peaches. Probably the Elberta should be credited with some of this change of opinion. We have fruited for three years past a variety purchased for Salway, but which is not the Salway as known West, that promises very good as one to carry the season later. Have also been pleased with the action of Smock for a late one. We do, however, much need an early one, hardy, and of the Crawford type. We fruited several new ones at the college the past season, but all were white, and except perhaps Mamie Ross, had nothing to recommend them over those already known. We have several yellow ones that should bear the coming year, and, I hope, fill some of the vacant spaces. But in planting peaches I think we should consider proportion as well as varieties.

In apples the question takes a rather different aspect. Here quality comes in partially, at least, as against quantity. Will it pay to grow quality at the risk of less quantity? I think the successful result will depend on the grower. Whoever will give the care needed to produce those kinds rated high in quality will make them pay well. The ordinary grower had better stick to quantity, till the other man drives him out of business. It must be understood that most of the better kinds will require greater skill to produce them. With the great central West supplying quantity in almost unlimited amount it is certainly for our interest to grow more of the high-grade kinds, as most of them cannot be grown in the central apple states. I do not remember ever to have seen any Ben Davis or

Fallawater in the \$3.00 Oregon boxes. This is not saying we must use all new or uncommon kinds. Very few have reached the best results with what may be called the good common kinds. As to a few of these: the Baldwin, by all means. In both quality and looks it can be vastly improved over the average specimens found for sale. The Greening, placed by one noted authority on quality of apples, as one of only two varieties that he deemed fit to rank high for either market, dessert or cooking purposes, may be often seen not fit for either class.

No one questions the high quality of Sutton, but it has faults that have to be overcome to be at its best. Hubbardston, its parent, may be placed with it. Fall Pippin only needs care to make it as profitable as any apple grown in this section. Of course McIntosh will come in. I fear there is disappointment ahead for many now planting that variety and which will come wholly from neglect, which it will not stand.

If the few trees at the college of Fameuse or Snow signify anything, then good treatment is all that is required to rank it with the others. The present outlook is that Esopus Spitzenburg and Jonathan can be included in the list.

Our trial orchard has developed a few, some new and others old, but not well known, that can also be used. I have samples of a few here. The Chenango Strawberry, one of the most showy as well as high flavored of early fall apples, but very tender to handle. Tree a moderate, good shaped grower. Dudley—A good grower, early bearer, very showy, even early in the season. Not as fine grained as some already mentioned. This is very popular in central Maine, where it originated. Oakland—An ideal tree in form but rather slow in growth and in coming into bearing. Of quality, very fine grained, and flavor. Very mild and practically sweet late, but not insipid.

We have others which I think can be included later. From some experience the past fall I am convinced there is a market for more fine fall apples. Not the cheap grade but fine table apples. Clean Fall Pippins were readily salable at any time in our local market at \$3.00 per barrel. I think the Maiden Blush would find ready sale. The usual idea for a commercial orchard is a few winter kinds. For shipment I think this is

correct. But I see no reason why the commercial apple grower in this section should not grow quite a succession for season, and as well lengthen the time of harvesting. I am no believer in the old plan of a family orchard and sell the surplus. The commercial grower must have enough to attract buyers, but when one reaches more than car lots of a kind I see no reason why he should not extend the list of varieties.

DISCUSSION.

A MEMBER: What about the Wealthy?

PROF. GULLEY: It is a good salable apple, but has not high quality. I would not place it among the quality apples. I am planting it as a filler.

MR. ROBERTS of New Jersey: Don't you raise any summer apples?

PROF. GULLEY: A few are raised in Connecticut. A man would be considered crazy to plant many.

A MEMBER: Is the Gravenstein apple a good variety?

PROF. GULLEY: It is a good apple to sell if properly handled.

MR. ROBERTS of New Jersey: Why would a man be considered crazy if he planted summer apples?

PROF. GULLEY: Because you New Jersey people send summer apples to us; we have other things that take our time in the summer, so we keep out of the summer apple business; our markets use some, however, furnished by other localities.

MR. ROBERTS: Our summer apples bring us as much as our winter apples, and we look after our market for them closely.

A MEMBER: Are those apples you have told us about particularly adapted to Connecticut?

PROF. GULLEY: I grow them all at the college and they very easily compare with other varieties.

A MEMBER: Are they preferable?

PROF. GULLEY: I could only say *that* as to the old varieties. When we have tested the newer varieties I can tell you better.

I have been asked more or less about the "seedless" apple.

Now, I say to you, don't invest more than one dollar for your trees. I don't care whether it is a seedless variety or not. I received word from the "seedless apple" company that they were going to send me a sample of the "seedless apple"; that they had not been able before now to let me have one. Last Thursday I had word they were sending me by express, samples. Saturday the package came and we opened it and found these canned "seedless apples"; I called the boys in and we made a little study of the samples. One of the students said the samples looked as if they had lost not only the seeds but also the pulp and core. They are practically coreless, and both ends are alike,—a most peculiar growth. I am not saying one word against them, mind you. I understand there are some genuine apples in this hall that have not been tampered with and I think we should have an opportunity to look at them and have them cut so that we can see the inside. I certainly must caution you about this apple.

MR. J. H. HALE: Why don't you say something against them?

A MEMBER: Where is the man who represents this apple and is selling the trees?

PRESIDENT EDDY: I will give the representative of the seedless apple five minutes in which to address us.

MR. GILDERSLEEVE: I have the pleasure of addressing a very intelligent audience upon a subject that for the last 12 years has been discussed pro and con all over the country. We have so many calls for exhibitions of our apple, and the cutting of the same that sometimes our supply becomes exhausted, and we have preserved samples in alcohol so there would be plenty to go around. Your Mr. N. S. Platt has seen me cut an apple and he has tasted it. I have been treated here as though I were exhibiting to you a fraud. How can you expect me to pass these apples around to everyone? They are too expensive and we can't get enough of them to do that in every place. In New Haven I did cut several and the pieces were passed about for all those who could get them to taste. I am perfectly fair about the apple and if I had more than this one (takes one apple from coat pocket and holds in hand), I would

gladly cut it for you. (Voice from rear of hall: I will give you five dollars if you will cut that apple you hold in your hand and show us it is seedless.) In time we shall do away with the core, for, as you know, the core is for the purpose of holding the seeds, and when there are no seeds there is no use for the core. Our apples have been weighed on the Fairbanks scales and pronounced to be the heaviest apples of their size of any variety, and what further evidence we can produce as to the genuineness and firmness of the fruit, I don't know. (Cries of "Cut it!" "Cut it!") Under the present feeling against us it is impossible to do more than we are doing until we get more apples to scatter broadcast among the people who doubt our sincerity. I think there ought to be charity for us who have put so much money and time and ability into this business for several years. John Ashe of Connecticut has four trees and he says it is a good tree, and you can go and see his trees and fruit.

MR. J. H. HALE: You say people are prejudiced against you. Why did you send to Professor Gulley the samples you did of only half an apple?

MR. GILDERSLEEVE: I had the sample sent from Buffalo. If I had known that kind of a sample was coming I would not have sent him any.

A MEMBER: Why are the people prejudiced against you?

MR. GILDERSLEEVE: Because their nurseries are stocked full of trees to sell and they don't want to take on anything new until their old stock is disposed of.

MR. HARRISON of Maryland: I represent the Nurserymen of America and I resent what he says regarding the nursery business; the nurserymen are not prejudiced against the seedless apple for the reason he gives. (Applause.)

PRESIDENT EDDY: The time has come to close this discussion, and we must now take up the next address.

It has been decided to make a slight change in our program and the next speaker will be Mr. C. E. Bassett of Michigan, who entertained us so well last evening. Mr. Bassett will now talk to us on "Co-operative Shipping and Marketing."

Co-Operative Shipping and Marketing.

By C. E. BASSETT, Secretary Michigan State Horticultural Society.

The fruit grower, like the producer of any commodity, is chiefly concerned with two factors, viz.: the art of production and the art of selling. Both of these lines of work must be given proper attention, if the grower would attain that degree of success which he desires. The first requisite in successful marketing is to have a first-class article to sell, but even that condition is not all sufficient. We must see to it that our fruit goes into the hands of the consumer in the best possible condition and that the prices paid us are an equitable share of what is paid for the fruit by that consumer.

The reason why most fruit growers have given so little attention to the marketing of their products is because their entire energy has been devoted to the production and preparation of their fruit for market. Our products are perishable and where sales cannot be made for spot cash, it is often thought necessary to make consignments to commission firms. Probably no class of men are more generally condemned or more fully trusted. Millions of dollars of fruit and produce are sold by them upon honor, with scarcely a restraint or check upon their actions, except such as may be dictated by policy or their own conscience. (I place that word "conscience" in the singular number, inasmuch as some of the profession seem to be lacking that appendage.) It is little wonder then that selfish and dishonest men enter this field of trade, to the constant annoyance of decent men and that such suspicion, as may be engendered by rascality, will often attach to the best firms in the same line of business. I honestly believe that commission men, as a rule, will compare favorably with the men who patronize them. My criticism is not so much of the men in the commission business, as it is of the unbusinesslike system. I am pleased to note that by another form of co-operation the National League of Commission Merchants are placing their business on a more reliable and satisfactory basis. However, if you enjoy shipping on con-

signment and find this branch of the "lottery business" to your liking, select one good, strong, honest firm and then make that one your partner. Some make the serious mistake of dividing their shipment among many firms that do business on the same street, thus putting their fruit in direct competition with itself.

But let us look at the horticultural situation and see if our old style methods are not in need of improvement. As a result of careful investigation, I am convinced that a bushel of peaches for which the consumer pays \$1.50, does not net the average Michigan grower, who ships on consignment, over fifty cents! This means that the grower pays twice as much for getting his fruit to the consumer as he received for his own share for producing it. Is such a condition fair? What ordinary business is there which will stand such a constant drain and profitably exist? I believe that I have correctly diagnosed the disease from which our business is suffering, but what is the remedy? There's the rub. Abstract propositions will not satisfy us. We must have a practical plan, and such is what I shall attempt to present.

INDIVIDUAL SHIPPING ON CONSIGNMENT.

Fifteen years of careful study of this market problem led me to the observation that, under individual effort, *i.e.*, when each grower markets his fruit independent of his neighbors, the following faulty conditions exist:—(Diagram 1)

Fruit is (1) of low grade.

Packing is (2) 'poor, (3) not uniform, (4) in many styles of packages, (5) with consequent high cost of packages.

Shipping is in (6) less than car load lots, (7) at high rates, (8) with poor service, (9) with heavy losses in transit, (10) with no influence to secure better service.

Marketing is done (11) on consignment, (12) with too many middlemen, (13) no remedy against dishonesty, (14) many shortages, with no system of tracing them.

Such are some of the principal faults of our marketing plan, under individual effort, and any system which corrects one or more of these faults must be considered a desired improvement. I know of no more forcible way of showing how

co-operation can help in solving these difficulties than by telling you of some ways in which it has aided us in the fruit belt of western Allegan County, Michigan.

CO-OPERATIVE SHIPPING ON CONSIGNMENT.

One of the first drawbacks that we had to contend with was the cost of transportation. The location of our orchards is such that we can patronize either the railroad or the boat lines to Chicago, but there has been no competition between them. An express company operated over the fruit train for about fourteen years, giving very poor service and stubbornly maintaining a rate of six and one-half cents for carrying a fifth of a bushel less than 140 miles. Efforts of individual growers to secure better or cheaper service were of no effect.

Matters were going from bad to worse, when, in 1891, the growers organized themselves into the Fennville Fruit Shippers' Association and adopted the "granger" system of shipping their fruit. We have a local agent, who receipts for and loads the fruit into ventilated cars, holding about 2,500 fifth-bushel baskets, for which he receives \$2 per car. Our united effort not only secured a better class of ventilated cars, but we secured a special fast freight, which starts from Fennville every evening, Saturdays excepted, for Chicago. The cars are all billed to our Chicago consignee, who does the unloading, distributes the fruit among the several commission firms to whom the different shippers have consigned it, attends to the freight, shortages, etc., receiving for his services \$4 per car.

As the result of this co-operation, we have been able to secure the general adoption of a standard climax package, at a saving in their cost of at least one-fourth. The freight rate has been lowered from the express rate of six and one-half to two and one-half cents, and, the boat lines having to meet this reduction, every shipper in our fruit belt has been equally benefited, whichever way he shipped. All shortages have been promptly paid. In one season our fruit section shipped 6,000,000 baskets of peaches and the saving to the growers that year by the Association was not less than \$200,000.

Not only have we obtained better service at much less cost,

but it has been done at a cash profit to the association. This profit, amounting to many thousands of dollars, has been expended in the grading and graveling of our public highways, until we have now reconstructed several miles of first-class gravel roads. Before our association began this work 200 or 250 baskets were considered a good load for a team, while now our teams handle more easily 500 to 600 baskets, actually doubling the earning capacity of a team and its driver. Our combined influence also led the railroad to donate 300 cars of gravel for this road building. We find that, where a single individual has trouble in getting the ear of the railway officials, the representatives of an organization of 400 shippers receive a most respectful and gracious hearing. A review of the work done by this association will show that we have, in a large measure, corrected the faults numbered 4, 5, 6, 7, 8, 9, 10 and 14.

INDIVIDUAL PRIVATE MARKET.

A third system of marketing is that of the individual private market—shipping on orders direct to the consumer. There are a number of wealthy people who are glad to pay a fancy price for a really fancy article and many small growers of first-class fruits find much profit in supplying these customers. The fruit must be the best and graded and packed most carefully. The deal is cash, so that faults numbered 1, 2, 3, 11, 12 and 13 are thus corrected. For several years we have supplied a small amount of this trade from our own farm, the gain being the higher prices obtained, with a growing business season after season, our products being advertised by our satisfied customers. But there are many details in the system, so that more and better help are required and this business must be done on a small scale. This method of marketing is generally carried on in connection with some other more extensive plan.

HOME MARKET WITH FOREIGN BUYERS.

In the large fruit centers, one of the most satisfactory manners of marketing is by attracting outside buyers to come



CO-OPERATIVE FRUIT MARKETING BY MICHIGAN GROWERS.

Scene in a Central Packing House in Shelby, Mich.



Icing Refrigerator Cars in Michigan for Shipment to the Boston Market.

right to the point of shipping, where they buy in car lots, generally shipping to some distant market under refrigeration. This building up of a home market requires the co-operation of the growers, as it is necessary to do considerable advertising, both by circulars mailed to the leading wholesale fruit houses and by expensive advertisements in the fruit trade journals. (Booklets.) These buyers make their purchases direct from the growers and the fruit is paid for in cash on delivery at the car door. When we get these buyers to come to us, we co-operate to see that they are given fair treatment by the individual growers, assist in securing good refrigerator car service and do all in our power to make their stay among us both pleasant and satisfactory. So far we have been unable to establish any reliable system of inspection of the pack of the various growers, so that faults numbered 1, 2 and 3 have not been overcome, but the eleven other faults enumerated have been done away with, as far as the growers are concerned. Of the system of marketing, so far mentioned, I consider this home market plan by far the best. It is businesslike, as it gives me a chance to say something as to the price for which I will part with my products. When I cannot do that, I am ready to change to some occupation where I can. During the past eight years I have not shipped a total of \$500 worth of fruit on commission, but have sold our entire output right at our point of shipment, most of our peaches going east, to Boston, Springfield, New York and Pittsburg.

But, in the four methods of marketing mentioned, there still remain some important faults to be remedied and we have had to resort to another form of co-operation, which promises to be of permanent benefit—the Central Packing House system.

CENTRAL PACKING HOUSE.

We have had five of these packing houses at Fennville and we have fully demonstrated their efficiency in handling and marketing the products of large orchards. Usually six or eight large growers combine and erect a large packing house alongside of the railroad. Their fruit is brought direct from the orchards to this packing house, where it is carefully graded

and packed, each grower receiving credit for the number of packages of each grade which his own fruit makes. The foreman and packers, having no financial interest in the fruit, pack top and bottom alike and every basket can be guaranteed. Solid cars of one straight grade can thus be purchased any day during the season and we find that buyers will pay more for this fruit than where they have to drive around the country and pick up a car load, of as many different grades as there were packers.

The *obstacles* in the way of this central packing house plan may be mentioned as: First, some expense in erecting and equipping a plant; second, the difficulty in securing a competent manager—one who has more than ordinary ability and good judgment, experienced in handling help, and one who can hold the confidence of the patrons; third, the lack of confidence which farmers have in their fellows, resulting in their fear that some of their partners will get a better deal.

The principal *advantage* is the application of modern and systematic business methods to the fruit industry. Organization is the basis of modern successful business operations and only those lines of business that are well organized are successful in a marked degree. The statement is often heard that a farmer's organization is sure to fail—that "farmers will not hang together," etc., *ad nauseam*. I think the experiment among our Michigan fruit growers disproves that statement, and I believe that the tendency among progressive fruit growers is towards such organizations. I believe that these separate packing houses will eventually grow into a federation, with a central head, that will keep in touch with all of the principal markets and keep the units of this federation informed regarding markets and prices—a fruit growers' "trust," if you please.

A review of the plans of the central packing house shows that nearly every fault in marketing that I have first enumerated is by that plan corrected, when the system is fully carried out by men of marked business ability.

LEGISLATION.

There is another form of co-operation which we should all favor—co-operation along lines of legislation. We may not

all agree as to the desirability of a law, establishing federal inspection of fruit in this country, similar to the Canadian "Fruit Marks Act," but I submit that, if every State in the Union would pass a law, compelling every packer of a closed package of fruit to place his name upon each such package, there would be a more reputable class of packing done, with the result that better fruit would be produced and more fruit consumed, to the increased profit of all growers. I claim to be as honest as the average fruit packer, but I know that, if I were obliged to place my name upon every package of fruit that left our packing house, I would, for the credit of my good name, take even more care in the grading and packing of our products.

By referring to my five diagrams, it will be seen at a glance that the two plans showing the greatest number of faults are those where the growers act as individuals—*independent* of each other. In the three systems, where the largest number of faults have been corrected, one word and one thought stands out most prominent—*co-operation!*

If agriculturists could be brought to realize what co-operation might do for them and then *act* upon that knowledge, who could live without paying them tribute? In my experience among fruit growers, I have found certain *parasites*, who would oppose co-operation in any form, for no other reason than that the less his neighbors know, the greater his opportunity to profit by their ignorance.

Co-operation is the beacon light of emancipation to the farmer and the only means by which that traditional fear and suspicion, born of wrongs and injustices, as far back as Jacob and Esau, can be dispelled. Where co-operation is the watchword, the community is immune from the adventurer, who figures farmers generally as his legitimate prey.

This very interesting and practical address, so clearly illustrated with charts and figures, was attentively listened to, but as the hour for adjournment had arrived, the discussion was deferred until the afternoon.

MR. BASSETT: In regard to the "seedless apple" question. I honestly feel that we ought to take a very decided stand in

the matter. I don't believe any public speaker on this question should take any half-way ground; it has been tested in so many places, the people who have examined it fail to find any merit in it, and why should we waste our time with experimenting with it when other matters need attention? We have experiment stations for the purpose of experimenting; let us leave the work to them.

SECRETARY MILES: Before we adjourn for the noon hour I would like to speak briefly in regard to our membership. It is not a pleasant duty to be obliged to keep calling this matter to your attention, but we *must* have your dollars; our work demands them. If you don't renew your membership we have nothing to fall back upon during the year. I cordially invite you all to join this society and help us with your presence and your money; we need both. We have on hand a number of the back reports of the society, and those members who have not the full set of reports can complete their files so far as we have the numbers on hand.

At 12.15 a recess was declared until the afternoon session.

AFTERNOON SESSION.

The convention was called to order at 1.40 for the closing session, President Eddy in the chair.

According to the program, the first business of the afternoon was the election of officers for the ensuing year. The Committee on Nominations, appointed the previous day, was called upon to report.

Mr. J. H. Hale, chairman, reported for the committee as follows:

MR. HALE: Mr. President, your committee would report and recommend for officers to serve the coming year the following nominations:

For President—J. H. Putnam, of Litchfield.

Vice-President—E. Rogers, of Southington.

Secretary—H. C. C. Miles, of Milford.

Treasurer—Orrin Gilbert, of Middletown.

County Vice-President—*Hartford*, Stancliff Hale of South Glastonbury; *New Haven*, M. L. Coleman of Seymour; *Litchfield*, Charles L. Gold of West Cornwall; *Middlesex*, C. E. Lyman of Middlefield; *Fairfield*, W. E. Waller of Bridgeport; *New London*, Charles A. Gray of Norwich; *Windham*, E. E. Brown of Pomfret; *Tolland*, C. H. Savage of Mansfield.

On motion of Mr. Hubbard, it was voted: That the report of the committee be accepted and that the Secretary be directed to cast one ballot for the entire list of officers as submitted.

The instruction of the above vote were then carried out and the following were declared duly elected:

OFFICERS FOR 1907.

President—J. H. Putnam, Litchfield.

Vice-President—E. Rogers, Southington.

Secretary—H. C. C. Miles, Milford.

Treasurer—Orrin Gilbert, Middletown.

County Vice-Presidents—*Hartford County*, Stancliff Hale, South Glastonbury; *New Haven County*, M. L. Coleman, Seymour; *Litchfield County*, Charles L. Gold, West Cornwall; *Middlesex County*, C. E. Lyman, Middlefield; *Fairfield County*, W. E. Waller, Bridgeport; *New London County*, Charles A. Gray, Norwich; *Windham County*, E. E. Brown, Pomfret Center; *Tolland County*, C. E. Savage, Storrs.

PRESIDENT EDDY: At this time I desire to extend to the members and officers of this society my sincere thanks for their hearty co-operation during my term of office, and to assure you of my appreciation of your many kindnesses, and I bespeak for our new President, Mr. Putnam, the same cordial welcome and hearty assistance you have given me.

PRESIDENT EDDY: We will now take up question No. 16 on the list, "What is the present outlook for the Peach Crop of 1907?" and I will first call on Mr. Hale to report:

J. H. HALE: Practically all the peach buds in our orchards, and not only my own but my neighbors, at Glastonbury, are dead. They were swelled more or less by the warm

weather in December and January and the extreme cold of two weeks ago practically killed all the buds. I know of no one in the town who has been able to find a single live bud. Unquestionably there are some little dried up buds on some hardy varieties that will mature. I presume that Glastonbury will have enough for eating purposes but none for the market, a few hundred or a few thousand baskets perhaps.

MR. ROOT of Farmington: An examination of both our high and low situated orchards shows not a live bud, and as far as I know we have none.

MR. WARNER of North Haven: As far as I know pretty much all of our peach crop is killed. Perhaps a few on high ground have survived.

MR. WALLER of Bridgeport: I examined the buds in my orchard about ten days ago and I think I have about 50 per cent. live buds on three years old Elbertas.

MR. COLEMAN of Seymour: I examined my trees the day after the freeze, the 24th of January, and I thought 95 per cent. were alive, but I find I was mistaken and after a thorough examination have to report the same as the other growers. The word is dead, dead, dead!

MR. BARNES of Wallingford: My examination of the trees would indicate that the Elbertas on the older trees are all gone, while with such varieties as the Champion, Old Mixon and the New Prolific there are probably 25 per cent. alive, both on young and old trees. I made an examination after the temperature had changed, so I feel pretty sure about it.

MR. JACKSON of Norwalk: I think our county, Fairfield, is a little better off than some of the others. Last Saturday I cut buds and found from 50 to 60 per cent. of the Crawfords alive.

MR. PLATT of New Haven: I have a few Crawfords within a mile of the town of Orange. I examined them four days after the worst freeze and found 20 per cent. still green.

CONNECTICUT VALLEY ORCHARD COMPANY of Berlin: We can find just a few live buds on the Belle of Georgia and Champions and not a live one on the Elbertas. I consider most of the buds are gone.

PROFESSOR GULLEY, Storrs: There are no live buds worth

speaking of with us; they are practically all killed.

MR. BLISS of Massachusetts: Our buds are practically all dead, as far as we know now.

MR. A. WARREN PATCH of Boston: There is quite a movement in different parts of the United States—I am not aware that this association has taken any steps to help it along—and as a member I would like to make a motion to the effect that the Connecticut Pomological Society approve of having the third Tuesday in October known as “Apple Day.” Last fall it was taken up in Boston, Chicago and other cities and many barrels of apples given to the different charitable institutions, as well as thousands of people who called at a stated place to receive an apple each. I would offer a motion that we approve of “Apple Day.”

Motion seconded and carried.

MR. PATCH: Another matter,—there has been more or less discussion for some time regarding a national flower for the United States, and as other societies are proceeding along this same line, I will make a motion that this society approves of making the *apple blossom* the national flower.

Motion seconded.

A MEMBER: It seems to me the matter ought to receive more consideration than we are able to give it now before adopting such a measure. Let us put it over until next year.

MR. PATCH: The apple is grown all over the United States and every organization of this nature, as far as I know, has approved of it. It is not only for New England but as much for the whole of our country. However, I do not wish to press the matter against objection.

MR. PLATT: In order to have the matter decided as we would like it decided, I move that a committee of three be appointed to take the matter under consideration and bring it before the next annual meeting for decision.

MR. ROBERTS of New Jersey: I am astonished to find there is any hesitancy in adopting such a measure as this, when we have a blossom as wholesome and as dainty as the apple blossom presented to us to adopt as a national flower.

A MEMBER: We ought not to hesitate about the matter.

There is certainly nothing equal as a flower to the apple blossom, both wild and cultivated. Let us decide this matter today and not put it off. We can't commit any harm by adopting it, I am sure.

MR. IVES: Surely from the standpoint of a fruit grower nothing could be more fitting than the apple blossom, and what is more dainty and fragrant for the sick room than the blossom of our apple trees?

The amendment of Mr. Platt, to refer the matter to a committee was then put to vote and lost. The original motion to endorse the apple blossom as national flower was unanimously carried.

Mr. Putnam of Litchfield introduced the following resolution:

Resolved, That being opposed to any and every form of chartered monopoly in our state, we, the members of the Connecticut Pomological Society, urge upon the General Assembly the prompt repeal of the present telephone law which effectually prevents all but one class of our citizens entering the telephone business in Connecticut.

The resolution was seconded by Mr. Hale.

MR. LYMAN: I don't think this question should come up before us to be decided today offhand; it should be considered in a more careful manner.

MR. HALE: That it should have more full consideration at our hands, there is no doubt. We have heard the remark of our friend from Ohio regarding telephone conditions there, and we know that no other state in the union has sold out or given away its privileges in this respect except our own state, Connecticut. Every other state is free. In Connecticut we are hampered; we are not free. Wherever there is competition of the proper kind the service is improved, in both the old and new company and the rates are reduced. It is right that the farmers and fruit growers should have the same opportunities as the manufacturers in the cities have. We have to compete in the markets with men who have better facilities than we, and we need better service in the telephone line. I hope this resolution will pass.

MR. FENN: Two years ago the telephone company promised to give us improved service and better rates; they carried out their promise to a few of the big fellows and the rest of us are in the same boat as we were before. The law should be repealed, I say.

The resolution was then unanimously adopted by the society.

PRESIDENT EDDY: I understand the committee appointed to judge the fruit exhibit at this meeting is ready to report. We will now listen to Mr. Orlando Harrison.

MR. HARRISON: Mr. President, our committee desires to preface its report by complimenting the society on the excellent display of fruit downstairs and to say that we have been convincingly shown that the soil of Connecticut is particularly adapted to the growing of apples and especially the Baldwin variety. We have awarded premiums as follows: (Complete report of awards will be found on page 155.)

SECRETARY MILES: I would like to suggest that it would be very desirable if the county vice-presidents of our society could be induced to take a more active part in our work. At present they are largely officers in name only. We need an active representative in each county, working through the year, to build up the organization.

In order to get at this matter, I have drawn up and would propose for your action the following amendment to the by-laws:

"It shall be the duty of the County Vice-Presidents to actively represent the society in its various lines of work in their respective counties,—to arrange for at least one meeting of the society in their county during the year and to report to the society the progress of the fruit-growing industry in their respective sections of the state."

The adoption of the amendment was moved and seconded.

PRESIDENT EDDY: I would remind you that a two-thirds vote is necessary for the adoption of an amendment.

Upon being put to vote the proposed amendment was adopted.

PRESIDENT EDDY: We are now to have the illustrated address we have all been looking forward to with much interest. I am glad to introduce to you Mr. H. B. Fullerton of Huntington, L. I., who will tell us of "Pioneer Work in the Development of Fruit and Vegetable Gardening on Long Island Waste Lands."

(Mr. Fullerton's intensely interesting address, which occupied nearly one and one-half hours, was illustrated with many lantern slides. It is possible to give here only the following brief resumé of the lecture:)

Pioneer Work in the Development of Fruit and Vegetable Gardening on Long Island Waste Lands.

By H. B. FULLERTON, Huntington, L. I.

Mr. President, Ladies and Gentlemen:—

Over on Long Island we have an immense acreage, some 200,000 acres, upon which nothing can be raised, so tradition says. Most people think of Long Island as a sort of Coney Island, a long sandy bathing beach, but never as a territory on which to carry on market gardening. In that business you have to think of transportation facilities wherever you go, and that is the thing most of us are inclined to forget, although it is the one thing above all others, that has developed the United States, and that enables your townsman to go down to Georgia and raise peaches and help the poor hungry New Yorker out. The railroad has done more for the territory through which it passes than the original inhabitants think, and railroads must develop their territory to make themselves paying investments.

When Mr. Ralph Peters became president of the Long Island Railroad he found 240,000 acres of idle land, within easy distance of the largest market in the world. The west end of Long Island is the residential section of New York City; the eastern portion, the bulk of it, is uncultivated, excepting a small portion. Mr. Peters asked me how much wild acreage we had better try for market gardening, as an object lesson, and I told him ten acres was a great plenty. He said to "Go ahead," and fifteen minutes later I was on the train started for Wading River. The people told me the soil was

absolutely no good, it was sour and cold, and that nothing would grow in it for six years, but Wading River was decided upon. As far back as the oldest inhabitants could remember that territory had been covered with "scrub oak waste," low growing bushes with at least 150 big stumps to the acre, charred second and third growth oak and chestnut, the result of forest fires. On the 23rd of August we were ready for work. We had any quantity of stump pullers guaranteed to us, but we had an idea that the quickest thing on earth was dynamite and it was selected; on some acres we found there were 300 stumps to be gotten rid of and on the last acre by absolute count we took out 750. We decided to spend the railroad's money with the people of the island, as there were numerous young men doing nothing. The first day I engaged twelve men to work. Only one man arrived. I decided that method wouldn't work, so I engaged men from sunny Italy and we pitched our "tent" in the wilderness and got to work on the stumps. For houses we decided upon condemned freight cars; they cost but \$10, while the hauling and placing cost about \$15; for \$25 we had secured one of these to serve later as a permanent chicken house. A second car was found necessary when the Italians arrived, which we planned ultimately to use as a hay loft, and that was placed on the location selected for the barn.

The dynamite we used is put up in half-pound sticks, and wrapped in yellow paraffined paper. One end is opened and a hold made in the stick with a wooden skewer. For battery work we used a copper cap containing a small quantity of fulminate of mercury and which requires a spark to explode it; to the cap is attached two electric wires and sealed. This is placed in the hole made in the dynamite and tied by drawing string around the paper raised to admit the cap. We drove a hole under the stump with a crowbar; these holes we made as horizontal as possible and directly under and against the stump that all the explosive force might be expended on the wood. All stumps we had blown out were burned the same day and the ashes scattered for fertilizer. Sometimes when we had an unusually large stump we would have to put in three charges. As fast as the stumps were blown out and burned and ashes

spread, a plow followed. There was no top soil or humus, forest fires having robbed the land of that, and forest land is sour, owing to heavy shade, so we determined to spread half a carload (ten tons) of old strawy manure to the acre and procure Canada wood ashes which contain about 40 per cent. vegetable lime. October 1 we began to spread the manure and plow it in, as it was our intention to sow winter rye on as much of the land as could be prepared before cold weather in the hopes of having a few inches of green humus to plow under in the spring. In 35 days after starting to clear we had $3\frac{1}{2}$ acres growing, and in 60 days ten acres, all of which flourished and was plowed under in the spring.

Thus far all the water we used had to be carried from the depot, a mile and a half away. It was our desire to experiment in a small way with irrigation, as we felt a market gardener should not be left to the mercy of the elements. The middle of October a driven well was commenced, located on the house plot northwest of the house site. We decided an engine was necessary and after much thought and investigation a kerosene oil engine was purchased. We felt that gasoline engines with unskilled labor were dangerous as well as expensive to operate. And the advantage to us of an engine over a windmill was that we could use the same in cutting wood, grinding grain, filling silos, lighting buildings and many other purposes. Water was reached by the well driller at a depth of 102 feet, and at 149 feet a large flow was struck with ideal gravel bottom and we have all the water we need and the first turn of the pump throws it into the tank, which shows the water stands close to the top of the pipe, and it has proved thus far never-failing.

At this stage the question of suitable shelter for the family came up and we purchased a five-room portable house that had been used on the beach for two summers.

It was our plan to experiment with fruit, to put in many named varieties and ascertain what was best adapted to the locality, and to procure the stock from widely differing sections, to see which change of latitude would show greater advantage.

Before the stock arrived holes had been dug to receive the

trees: apples occupied the first row, set 25 feet apart with a peach between them; peaches last but 12 years and will be out before the apples need the room; next came pears, then cherries, and one nectarine and one apricot for trial, then quinces, a quantity of Japanese plums, a few German prunes and green gages. The holes were prepared with wood ashes thoroughly mixed at the bottom, the roots carefully spread out, and dirt put on carefully and tamped that the air might be excluded. Every one of these varieties made strong, vigorous growth this summer.

In the spring we went through the frost line and put in the bulbs, and grass seed a little later. They all came up, although planted in February—and they bloomed just as if they had always been living there.

Rye was 15 inches high when we began to turn it under and 39 inches when we finished, and we began to plow as soon as the ground permitted. April 14 appeared and with it a white frost, but the hand drills were started early and four varieties of radish were put in, covering half an acre, and three varieties of peas. Then came out started plants from Huntington, the tomatoes were placed in a cold frame, cabbage and cauliflower plants were set in the field and lettuce, beets, onions, spinach, endive and celery as well as corn were drilled in. A little later all the trees and shrubs were sprayed as a preventive against the San Jose scale. A portion of the lawn was sprinkled as a test of irrigation and on the 26th of April the grass seed had germinated on this portion only. Potatoes were also planted this month. Rain rushed vegetation along and the rhubarb jumped out of the ground. On May 16th we shipped the first product of the farm, radishes; we sold our radishes for from 4 to 6 cents a bunch, whereas the markets were selling radishes for a penny. And lettuce, we had the finest head lettuce you ever saw, and 19 varieties and we headed it all. The peas we picked when half grown—that is the only way they are fit to eat—and we could have sold three times as many as we had raised.

We needed the birds to kill insect life and make all hands happy and so took an old stump long and slender and hollowed by nature into a basin. We ran a pipe from our water supply

through a tap root, while a gas jet top threw a fine spray. In a few days the birds came for a bath and as soon as they saw they were welcome, commenced to build their nests, and continued to stay with us.

Our early cauliflowers grew rapidly and we had a good market for them. We had quantities of melons, but on account of lack of packages didn't ship over 70 per cent. of the crop.

Our water tank holds 5,000 gallons and our engine will pump it full in six hours. Our irrigation system is simple and consists of a pipe running from the tower directly south through the chicken yard to the seed bed, then at an angle running west the entire length of the 10 acres. A second pipe was laid across the front lawn to the barn. All the pipes were laid three feet deep. About every 100 feet a standard was inserted with a stopcock at the top for attaching hose.

For years we had been convinced that there is a ready market for produce shipped direct to the consumer. A crate or hamper filled with vegetables in season was our idea and we decided to try it. A crate holding six three-quart baskets was selected. The three baskets in the bottom contained beets, newly dug potatoes and cabbage. A partition over these and the top three contained peas, lettuce and cucumbers, young carrots and young onions. This proved a success and we received requests for more. We have even sent these hamper home to Philadelphia with good results.

They said we wouldn't have any bugs, but we did and everything else there was. Where they came from I don't know, but they kept us busy. The cabbages grew well. We raised many varieties to see which would be the best. All our vegetables grew extraordinarily large and extraordinarily sweet and delicate and the yield was way above the average. You will find if you eat the carrots, radishes, parsnips, salsify and all root crops when they are two-thirds grown the flavor is much more delicate than at maturity.

We grew lima beans in large quantities and in various ways, but found the best way was on a wire fence, where we got four times the usual yield.

If you never have raised the little yellow tomatoes, just

try it this season, they are the finest preserving tomatoes grown.

Our tomato crop was so large it was with difficulty we could secure crates in which to ship it, and of course we only shipped the perfect fruit.

We raised a variety of cucumbers, the long and big round ones and the little ones; also celery and asparagus. And endive, but this didn't prove a successful crop; the marketmen didn't know what it was. Although we had a handsome crop, there is no money in it and we shall drop its culture. In the dairy plot of 8 acres, the forage crops were alfalfa, millet, oats, rye, sorghum, vetch, clover, corn, etc. The soil was acid as we knew and we used ashes and lime to overcome that condition.

The corn we planted was the regular flint and also the Virginia horse tooth, which grew to a height of 18 feet, and was the wonder of the country. The sweet corn, of which we had several varieties, grew wonderfully, but the Golden Bantam was the favorite for the table; it is extremely yellow and not good for market, but takes well in the families.

Spinach planted where early potatoes came out was showing in seven days and irrigation hastened its growth wonderfully, and this crop brought fair returns.

In September the fairs began to convene and as we wished to let our light be seen we arranged for exhibits. The Suffolk County fair was the first one and we erected a portable house and decorated it with pictures we had been preparing for some time of the development of the farm. Strange to relate, our yearling farm won eleven first and six second prizes and an honorary mention.

Our sweet potato crop was good, digging 40 bushels in the last crop; this with the previous one bringing the yield up to 51 bushels. Alfalfa was cut for the second time in October, showing good results.

We have proven that we can raise on Long Island's idle acres anything possible to be raised in the temperate zone; one of our neighbors said when asked what we were doing: "Plantin' dynamite and raisin' hell, and I reckon that's all they ever will raise." He was merely a pessimist, sadly plodding along the footpath of obstruction. (Applause.)

PRESIDENT EDDY: We have with us one of the most successful growers of small fruits in Massachusetts, Mr. Wheeler of Concord, and he will now tell us about his methods of culture and marketing.

Some Profitable Methods of Growing Small Fruits.

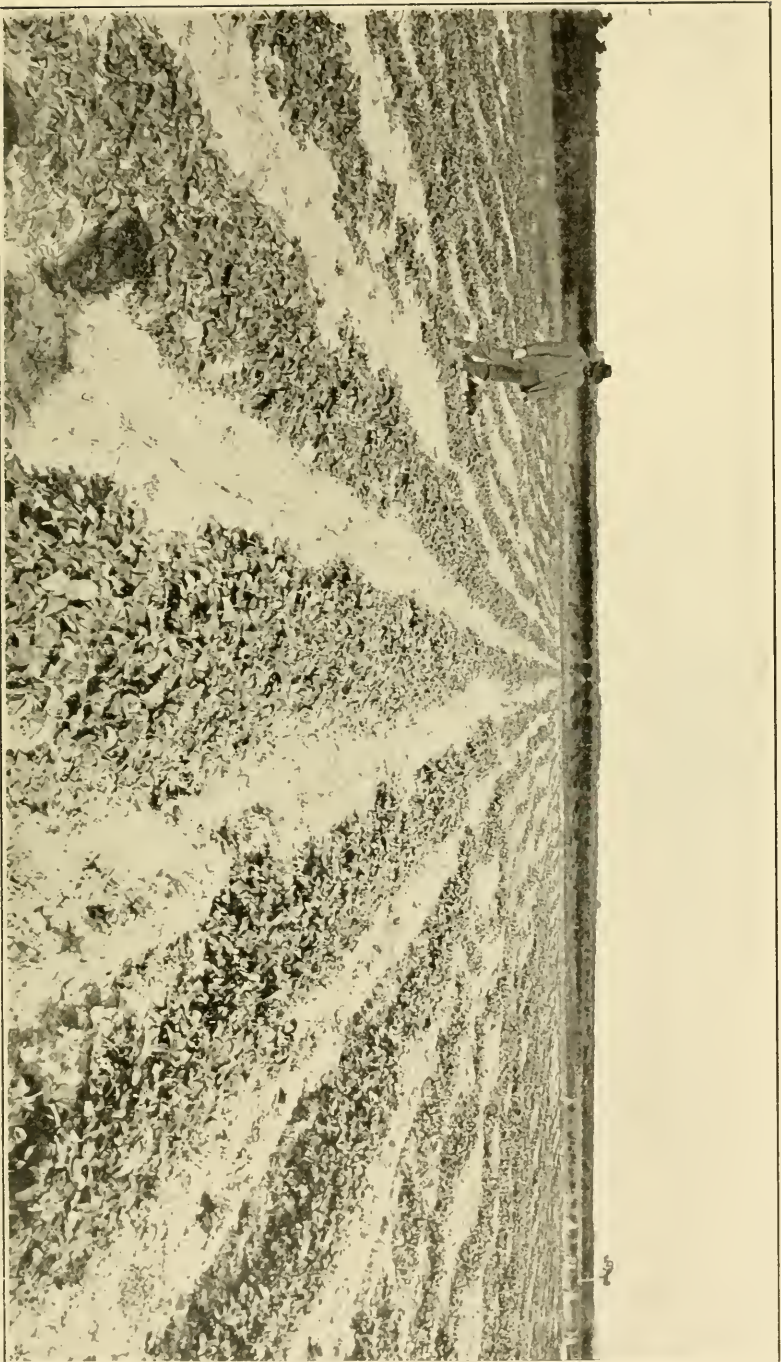
By WILFRID WHEELER, Concord, Mass.

The growth of our country during the past ten or twenty years has been very remarkable and its great industries have been taxed to their utmost to keep up with the increased demand for all sorts of material and produce. This condition of affairs has led specialization in many industrial pursuits and has also been extended to the farmer and the tiller of the soil in general, so that it has brought about great changes in the old style farm. Rarely now, except in remote sections, will you find the old fashioned farm, where everything was produced and consumed at home; *for the farmers, too, have become specialists.* We hear of the dairyman, the orchardist, the market gardener, the fruit-man or the horticulturist and these in their special lines are striving to fill the wants of the growing community in which they live, and are wide awake to embrace any new suggestion which may come to their notice.

One branch of their great work of which I intend to speak to you of today is, the growing and marketing of small fruits, which subject covers the strawberry, raspberry, blackberry, currant, gooseberry, etc. There are besides these a large number of other small fruit very important in many respects, but as yet they are only adapted to cultivation in special localities. Of these the cranberry is perhaps the most important, and of this my native state grows more than all the rest of the country put together.

In these days, when the out-of-door life is being spoken of, written of and lived, when the very children are being imbued with its spirit, no one who owns or leases a plot of ground can afford to be without his or her small fruit garden. The farmer whether he be an orchardist, dairyman or market gardener, owes it to his family to see that their wants are liberally supplied with these fruits so easily obtained, with a little care and attention, from Mother Earth.

PLATE V.



A STRAWBERRY PLANTATION IN ALLEGHEN COUNTY, MICHIGAN.
A PICTURE TAKEN IN AUGUST OF PLANTS SET IN MAY, ON SANDY LOAM.

Of the strawberry, Dr. Butler said, in Isaac Walton's *Complete Angler*: "Doubtless God could have made a better berry, but doubtless God never did," and I feel sure that you will all agree with me in placing the strawberry at the head of our small fruits. The ease with which it lends itself to cultivation, the beauty and flavor of its fruit, and its wide range of adaptability, make it the most cherished garden fruit the world has yet known; you will find it on the mountains, in the valleys, on the plains and in the small city backyards, always true to its mission in producing a delicious fruit which gives refreshment to man.

We consider that to grow strawberries at their best, new land is essential, because it is usually free from weeds, insects, pests and fungus growths.

Our method in preparing new land for strawberries and you will understand that this land has been in sod, is to break it up in the late summer, banowing it a couple of times when rye is sown as a cover crop for the winter. The next spring this rye is ploughed in when about ten inches high and sweet corn is immediately planted, using some standard fertilizer. After this crop is picked, the stalks are ploughed in green and buckwheat is sown for a late green crop to be ploughed in before early frost, when rye is again sown for a winter cover. By these methods the land is put in the best working condition besides supplying it with a high per cent of nitrogen, acquired from the green crops of corn, buckwheat and rye. If this green manuring method cannot be used, we plough in a good top dressing of manure in the fall and when ready to plant the field in the spring this manure is ploughed up to the surface again, where it is in a good position for the root of the plants and is also in the best condition for assimilation by the plants. When the land is ploughed in the spring it is made into beds 20 or 25 feet wide, as our land is flat and likely to retain surface water during the winter. The dead furrows are used to grow cabbage, and cauliflower or some other one-season crop which after being removed in the fall leaves the furrow open to drain off the water from the beds. In addition to the fall manuring a dressing of bone, wood ashes, and tankage or guano, are added to the land at the rate of 1,000 of bone, 2,000 of wood

ashes and 1,000 of tankage, or 500 of guano per acre; this dressing is applied with a fertilizer spreader, which insures an even distribution. The ground is then gone over with a smoothing harrow to thoroughly mix the fertilizer with the soil. After this a Meeker harrow, which we consider one of the best implements ever made for a farmer, is run over the ground and we are ready to set plants.

Generally one lot of men is digging plants while another is getting the ground ready, so that there will be no delay to allow the ground to dry up. If the ground is moist and the weather favorable, we dig plants in the usual way with a hook, packing them in boxes with alternate layers of soil to keep the root fresh. The field to be planted is marked out in rows four feet wide with a three-row marker. The first row is made straight with a garden line and the other rows are made by it. For fruiting beds four rows of an imperfect variety are set to two rows of a strong perfect variety. We find that the imperfect varieties yield more fruit than the perfect ones when properly polenized. With same varieties like Glen Mary, which is classed as perfect, we should plant even rows, four of each, as Glen Mary has both perfect and imperfect flowers. The plants are taken from the boxes, the root shortened one-half with shears, all surplus foliage removed and then the roots are dipped in a mixture of clay and water. One man drops the plants for two who are setting them out, each taking one row. Masons' trowels are used, as they make a straight cut to set the plant against. One thing we have to look out for and correct more than any other is the tendency of the setter to double the roots up instead of setting them straight down as nature intended they should be. The crown of the plants is set on a level with the surface of the soil and the earth firmly pressed about it.

If the weather is hot and the ground dry plants are taken from the plant beds with all the soil that will stick to them and set in the permanent beds. While this is a much slower method it is absolutely sure and the plant receives no check. This same method is used in summer planting, provided we have a large supply of plants to draw from. After the beds are set they are gone over at the end of three or four days with a

wheel hoe used astride the row. This works up the soil where the cultivator cannot be used and forms a dust mulch about the plants. This constant stirring of the soil is one of the most important duties of the strawberry growers; if the season is dry and hot this loosened soil forms a perfect mulch and keeps the ground water from evaporating from the soil; and so the fine tooth cultivator is kept going at least once a week, if the ground is not wet.

All blossoms and buds are removed from the plants as soon as they appear. This necessitates a good deal of work, but it is one of the important things to do, in order to get good strong plants. The ground is cultivated twice between each row until the runners begin to set, after which the cultivator is run only once in each space. The ground is hoed at least every ten days, at first with a wide hoe and then as the plants fill in the row a narrow hoe is used. In some varieties which have a tendency to make too many runners the first ones are pulled off in order to give the parent plant the extra strength necessary for the development of stronger runners later on. When a sufficient number of plants are rooted in the row the parent plant is pulled out and a good strong runner from another plant allowed to root in its place. These old plants have exhausted themselves making runners and are worthless for fruit.

The summer work on the strawberry beds consist largely in keeping the weeds down, setting the runners, removing the surplus runners and spraying. The wide matted row system is used on practically all of our beds and for market purposes we find it best, after having tried many other ways. The plants are allowed to stand from four to six inches apart and under these conditions make excellent fruiting crowns.

We are now using a watering system on some of our beds and consider it to be the best means yet tried of distributing water on a large scale; pipes are placed five or six feet above the ground on posts; these pipes may be any length you require. Our longest side runs are 300 feet, and one-inch pipe is used for this. In longer runs large pipe is recommended. Every four feet these pipes are drilled and tapped to take a small brass nozzle which has an opening 1-64 of an inch in diameter. These nozzles are set in exactly the same line on

the pipe, so that the streams of water will all go one way. At the supply end of the pipe a packed joint is made and in this joint is a strainer to prevent any particles from getting into the nozzles. The packed joint allows the pipe to be turned in any direction and water can be thrown thirty feet on either side of the pipe with a pressure of 40 pounds an acre or more of ground can be watered by turning one valve and the saving in the beds which have been thus watered have made almost one-third more growth than those not watered. In September when the rows are well filled up the ground is not stirred much. Weeds are pulled and the small space between the rows still cultivated. It is found best to let the plants go slowly now, as they harden up better and are more able to stand the winter. We are obliged to use a mulch to protect the plants during the winter and for this purpose coarse meadow hay is cut during the summer and stacked near the beds. If the foliage is heavy a light mulch so that the plants will not be smothered. This mulch is held in place with a little soil spread over it. Where surface water is likely to collect, holes are dug 3 feet deep and filled with leaves. This allows the water to readily drain away and saves the beds from destruction.

Summer and fall planting have been tried when fruit was wanted for exhibition purposes, but this is an expensive method and will not do for the general crop, though it is to be highly recommended for the amateur fruit grower, particularly when pot grown plants can be set in August and grown under the hill system. In the spring as soon as danger from heavy frost is past the mulch is removed with a horse rake, this being the quickest method and it is best to do this just before a rain, so that the leaves will be washed clean. This greatly improves the appearance of the bed. An application of wood ashes at the rate of 1,500 pounds per acre is made at this time and often some dissolved bone black is used if the plants have shown any weakness in the crown.

The surplus plants are then dug up and either sold or used for setting new beds and the final fruiting row is left about 2 feet wide with walks the same width for the pickers. The cultivator is kept going until the blossoms begin to fall and if the plants are deficient in foliage a small application of nitrate

of soda is made to the beds at the rate of 100 pounds per acre in order to distribute the small amount over an acre. The nitrate of soda is mixed with clean sand or fine loam and spread by hand. A larger amount of nitrate at this time has been found to soften the fruit and also makes it light colored. As soon as the fruit is well set the beds are mulched with the same meadow hay that was used in the winter covering. This work has to be carefully done or the mulch will be useless. The hay is placed by hand under the clusters of fruit and shaken with a fork in the spaces left for the pickers. This mulch serves a double purpose in keeping the berry clean and the soil from drying up should a drought set in during the fruiting season. The question of pickers has always been a difficult one and we have found that except for the third or fourth picking it does not pay to hire children. We have been able the last few years to get Italians, who are paid by the day to perform this very important part of the work and they have been found very satisfactory. The men sort the berries as they pick them, making two grades, which saves handling the fruit later on. The first grade berries are packed in trays holding twenty-one quarts and with the very best berries each basket is wrapped in paraffine paper; this has been found to add much to the appearance of the fruit when it reaches the market. These trays are packed one on top of the other in a cooling cellar and are kept from slipping together by a cleat on the bottom. The second grade berries are packed in the standard 32 and 48-quart crates, which are also removed to the cooling cellar as soon as filled. All of the fruit is carted over the road by our own teams during the night, so that it arrives fresh in Boston the following day about four a. m. It is delivered to the commission merchants and the team returns to the farm with a load of empty crates and trays. These tray berries sell from four to eight cents per quart higher than crate berries, but the fruit has to be first class to be salable in this way.

Generally the bulk of the strawberry crop is picked in four pickings, after which the plants are turned under and the land planted to buckwheat or cowpeas.

The most destructive of the insect pest is the white grub

larvæ of the June beetle; this can be held in check and entirely avoided by planting on land which has had a hoed crop the year before, and a good rule to follow is never to plant strawberries twice in succession on the same land.

For varieties we grow principally Parson's Beauty, Sen. Dunlap, Sample, Minute Man, Glen Mary, Haverland and Bismark. Of these our main crop consists of Minute Man and Parson's Beauty, while our neighbors have great success with Glen Mary, but we find that six varieties for market are better than twelve.

One of our neighbors is experimenting with a new shipping crate for fancy strawberries. This crate holds 12 quarts and is made on the principle of a chest of drawers or shallow trays which slide into the box are used and one layer of berries is placed in each of these trays. Marshall strawberry is grown for this trade and the No. 1 sell for about fifty cents per quart. Certainly fancy berries should never be placed on top of each other.

The raspberry and blackberry require similar cultivation. Land that has clay sub-soil with plenty of water in it is preferred, yet this land should be well drained, as nothing is more harmful to these fruits than too much water about their root. The preparation of the land is very much the same as for the strawberry, for both raspberries and blackberries thrive in a well worked soil, but less fertilizer of a nitrogenous nature is used, as too much of this tends to make a soft growth on the canes. The system used with us is the hedge row and the rows are furrowed out with double mouldboard plough five feet apart and the plants, which are young suckers of the previous season's growth, are set two feet apart, using two plants to a hill. The canes are cut back to within six inches of the ground in order to induce new growth from the roots. The spaces between the rows are planted the first year with some root crop like beets, carrots or onions, according to the location of the land. Corn has also been used, but the difficulty of removing the fodder without injuring the young plant has led to the suspension of this practice. The ground is kept well cultivated until about the middle of August, when cultivation with the exception of hand pulling of weeds just about the plant

ceases and the canes are given a chance to ripen up their wood. In late October and early November the canes are bent over the ground and entirely covered with earth for winter protection. This work is done by three men: one bends the cane while the other two shovel the earth from either side. In the spring as soon as danger from drying winds is past, and before the buds start the earth is loosened from the canes and they quickly straighten up and appear healthy and green. After being treated in this way we have found it to be the only safe method to winter raspberries in our climate. The second year posts are placed one at each end of the row and one in the middle, are well braced and two stout crosspieces are nailed to each post, one about 8 inches from the ground and the other about four feet. These crosspieces are about two feet long and carry a wire at each end, to which the canes are tied, the top wire only being used the first summer. The first year's crop is apt to be quite small, but is generally enough to pay for the work done on the bed. Cultivation is kept up to within one foot of the row on each side, so that the suckers shall not grow too much into the row.

In the fall two more wires are stretched on the lower cross-piece about 8 inches from the ground. The canes are bent over and tied to these two lower wires, earth is covered about the root of the plants and as much as possible over the canes, which winter very well in this position and are easily taken up in the spring, by cutting the tie and loosening the soil. We do not believe in cutting the canes back in the summer to induce the side row, as this has a tendency to make the wood soft and thus more canes are winter-killed.

Our fruit is picked as early in the morning as possible after it is dried off, in quart boxes, as we sell to a local market. Cuthbert Raspberry and Snyder Blackberry are the best varieties for our climate. After the second year blackberries are not laid down, but the raspberries require it every year. After the fruiting season the beds are gone over and all the canes which have fruited are cut away. Hens are considered to be a great help to raspberry and blackberry plantations, as they keep the soil worked up and eat all weeds and insects.

We use currants and gooseberries as fillers in young pear

and plum plantations, as they stand the partial shade very well until the permanent trees get too large. The bushes are set from nurseries rows at three years old and if possible in fall. We get much better bushes by growing them from rooted cuttings than buying them from nurseries, for they can be handled to much greater advantage on our own place. The bushes are dug up carefully with all the soil that will cling to them, placed on hand barrows and taken three or four at a time to their permanent places. The earth is well firmed about the roots and for winter protection it is heaped up about the body of the plant. In the spring this soil is leveled down somewhat and a dressing of well rotted manure added to the bushes. Besides this one-eighth pound of sulphate of potash is applied to every four bushes, together with one-half pound of dissolved bone-black. These three-year bushes set in the fall will produce a fair crop of fruit the next season. The currant worms are kept in check by a spray of arsenate of lead in Bordeaux mixture, at the rate of 2 pounds of arsenate to 50 gallons of Bordeaux. One application is generally enough, as arsenate of lead sticks to the foliage a long time, yet no ill effects can be noticed on the fruit. We pick currants dry in quart boxes and ship in 32-quart crates. Most of this picking is done by Italians and the cost per quart is about one-half of a cent. The fruit sells for about eight to ten cents per quart and as many as 14 quarts have been picked off of one five-year bush.

The demand for currants is increasing each year, and the market wants a large red berry as well as large clusters, which we find in Fay's Prolific, a seedling of the Cherry. After fruiting a portion of the two-year wood is cut away, thus keeping the bushes open to sunlight and air.

Gooseberries are picked with a small rake with the teeth placed close together; the berries are raked into large shallow boxes holding about 15 quarts. Of course some of the leaves and twigs are taken off in the process, so that the berries are run through a fan mill and all these leaves are blown out; the berries are then packed in 32-quart crates. We think the gooseberry a very profitable crop, selling at eight cents per quart, thus netting about \$350 per acre.

Your Secretary in writing asked me if I could give a short talk on small fruits and incidently say a few words on the growing of asparagus. Now, while the asparagus can hardly be called a fruit, yet many of our fruit growers handle it and nowhere with greater success than in my native town. For most of the farmers there combine asparagus and strawberries.

At the present we have about 25 acres of asparagus on our farms and while this may not seem a great deal to some of the New Jersey growers, when you consider how difficult it is to get land free from stone in Massachusetts, 25 acres of asparagus on one farm will seem large.

We have worked our present stock up from two varieties, Argentieul and Palmetto, selecting from both only those plants which seem to be able to withstand the rust. These selected plants are allowed to bear seed, from which the new roots are raised. We find at present that this is the only way to safeguard against the rust. The seed is carefully collected, cleaned and dried and put away in tight bags for next season's use. The seed bed, which is always on new land,—that is, new land for asparagus—is very carefully prepared and highly manured with stable manure, tankage and muriate of potash, at the rate of fifteen cords of manure, 1 ton of tankage, and 400 pounds of potash per acre. Later on after the plants have grown about one-half a dressing of one-half ton of guano and 1 ton of wood ashes per acre is applied.

The seed is sown with a Michigan seed drill and more seed is dropped than are intended to remain, as some of the seedlings are sure to get damaged in weeding, etc. Five seeds to the inch are about the number. It takes the seed nearly five weeks to germinate. During this time the bed is twice hoed with an Arlington scuffle hoe. Just before the seedlings appear the hoe is run very lightly over the top of the row, thus saving a vast amount of land labor later on. The summer work consists in keeping the weeds down, which is done largely with the scuffle hoe, and a narrow light cultivator that can go in a 20-inch row. This horse work more than doubles the size of the root over those beds which are not cultivated with horse labor. We have been troubled a good deal by the asparagus beetle, which if allowed to get the upper hand will

entirely destroy the young seedlings, so we have tried keeping broods of chickens on the beds and this has worked with great success. The chickens keep moving over the beds and eat all the grubs as fast as they appear; where it is impossible to keep chickens, an application of Paris Green in land plaster is put on when the plants are wet with dew. This is used at the rate of 1 ounce of Paris Green to 10 pounds of land plaster. The beds are covered with meadow hay as soon as the ground is frozen to a depth of an inch or so, to prevent deep freezing, as we cannot depend on the ground being covered with snow during the winter.

In spring this hay is removed and as soon as the ground can be ploughed the roots are turned out, loaded on carts and taken to a cool cellar, where they are sorted, counted and packed in boxes with soil ready for the planting, which is done about the middle of April. The ground which has grown some cultivated crop the previous year is put in the best possible condition by deep ploughing and thorough working. The rows are marked out four feet apart and furrowed deep with a two-horse plow going both ways in the row. The loose soil in the bottom is shovelled out and the finished trench 10 inches deep is ready to receive the roots, which are spread both ways, placed by hand in the bottom of the trench 18 inches apart and covered by a horse hoe with wings which follows the planters, covering two rows at once. A mixture of 300 pounds of nitrate of soda, 300 pounds of muriate of potash, 1,000 pounds of tankage and 1,000 pounds of wood ashes per acre, is spread over the rows with the two-row dropping attachment on the fertilizer spreader.

As soon as the shoots appear some of the earth on the sides of the trench is drawn in about them and this is kept up until the soil has all been filled in the trenches, leaving the crown of the root about 80 or 10 inches below the surface.

We find that after a bed is well established the application of chemical fertilizer is much better than stable manure, as manure even though it is not very lumpy is sure to cause many crooked stalks. The summer work and that of the next season consists chiefly in keeping the ground cultivated and hoed and in this connection we find a bent tooth weeder almost indis-

pensable. This implement covers about eight feet of ground at once and can be run over the growing rows, for the teeth are long and flexible enough not to break or injure the stalks. This same weeder is often used on our strawberry beds after the plants have become established, but it has to be used by a careful man. The constant use of this weeder when the weeds are small saves nearly one-half the hand labor on our farm.

The beds are worked thoroughly with a light harrow each spring before the shoots appear, and a dressing of chemical fertilizer is then applied. We find that it is not a good plan to give much phosphoric acid, as this seems to make the asparagus go to seed more quickly. Lime has a very beneficial effect upon old asparagus beds, for it frees much nitrogen which was held in the soil in an insoluble state.

We are apt to be troubled with the asparagus beetle for a time early in the season, so the second year after planting the beds are cut for about ten days or two weeks in order to prevent the beetles from getting a start and producing a second crop of grubs to destroy late shoots.

The third year the beds are cut for about three or four weeks, and after this are cut the full season of six or seven weeks. The beds are cut over early in the morning, rain or shine, each man taking two rows and cutting all shoots over six inches in height and at the least four inches are cut underground. The Boston market requires green asparagus and so it is of an advantage to get more of the stalk about ground than below it.

The cutters are followed by a man who picks up the asparagus almost as fast as it is cut, placing it upright in bushel boxes. By this method there is much less breakage than when the stalks are laid down in the boxes. From there the boxes are carried to the barn by team, where the bunching is done by boys from fourteen to sixteen. We find that they are generally better than men, as their fingers are not so clumsy. The boys sit about a table six feet square, which has in the centre a smaller table raised above the larger one by means of a piece of pipe. This smaller table is made to revolve on a piece of pipe and on it are placed the filled and empty forms, so that there is no passing of these from one to the other in order to get

to the tying machines. The asparagus is sorted into two grades called Giant and Common. The Giant includes nothing smaller than one-half inch in diameter at the butt, while the common takes all below this. This tying machine holds the stalks tightly together by a clamp operated by a foot treadle and the tier simply makes a knot of raffia about the bunch. A good tier can perform this work for five or six bunchers. The bunches are trimmed off with another machine and stood up in a tank of water, where they stay for about five hours. By this time they have become tight enough to stand shipment. Bushel boxes are used to market the asparagus in thirty-six bunches being packed in each box in layers of twelve. The asparagus is carted into Boston during the night, and delivered to the commission merchants, who sell it upon an 8 per cent. basis. The price generally averages about \$3.00 per box for Common and \$4.50 for Giant.

In the wide field of agriculture and horticulture is there not a greater benefit and a deeper satisfaction to be gained than the mere dollars and cents we may get from our orchard, farm or garden? The result of a life devoted to Nature's calling in the great out-of-doors, where man can live only in the truest and best sense, surrounded by the fields, the woods, the birds and the sky, should produce an effect upon us that would lead others to try the experiment, and so in time the sordid life of the city would not attract and a new life of happiness and contentment would dawn for our people. Let us encourage as much as we can this life in the country and not forget the advice of one most prominent horticulturist who said:

"Then cultivate fruit, plant for yourselves; plant for your children, plant for your neighbors away off in the distant cities; plant for the stranger that may come among you, plant for all and let all enjoy earth's richest fruits without stint or measure."

DISCUSSION.

A MEMBER: How long after you set it out do you get a crop of asparagus?

MR. WHEELER: Well, three years, as a general thing, but we cut a little the second year; from the seed it is four years.

A MEMBER: What variety do you like best?

MR. WHEELER: The Palmetto. It is larger and better in every way.

Resolutions Endorsing the Connecticut Agricultural College.

MR. STANCLIFFE HALE: I have a resolution I would like to present at this time.

Resolved, (1) That we, the members of the Connecticut Pomological Society, in annual convention assembled, cordially and heartily approving of the work and objects of the Connecticut Agricultural College, do endorse the appropriations requested of the present General Assembly for the more adequate equipment and support of the College, and

Resolved, (2) That we especially urge provision for the erection of the proposed Horticultural Hall and greenhouses.

Resolved, (3) That, in order that these our sentiments may receive due consideration, our Secretary be, and he hereby is, directed to forward copies of these resolutions to the Senate and House chairmen of the Committee on Appropriations, to the Governor, and to the President of the College.

On motion, duly seconded, the above resolutions were unanimously adopted.

PRESIDENT EDDY: I have pleasure in introducing to the convention at this time the newly elected President of the Connecticut Pomological Society, Mr. J. H. Putnam, and I ask that you give him the same cordial support you have given me the past two years.

PRESIDENT-ELECT PUTNAM: Ladies and Gentlemen, Fellow Members of the Pomological Society: I am not going to make a long speech of acceptance, but I do wish to say and to assure you of my thorough appreciation of the trust you have given me, and I thank you for the honor you have conferred upon me. I feel there are many others who are older in experience and more closely identified with the fruit-growing interests of the state and much better able to represent you in this office than I am, but as you have seen fit to elect me, I accept the responsibility, and I assure you that as far as my ability will permit me, I will endeavor to do my part toward making the Society of real benefit to every fruit grower in the state. (Applause.)

A MEMBER: I wish the President of our State College would speak to us.

PRESIDENT STIMSON: I wish to say simply this: that we ask you to judge us as you judge your trees, by our fruits. You know your College and the Horticultural department; nobody knows it any better. Do you think it is good? If you do, help us in our work to make the department broader and better.

DISCUSSION OF THE QUESTION LIST.

PRESIDENT PUTNAM: In the short time that now remains we will take up the question box and what is left on the question list. Question 1 is asked for, "Where are we at in our fight with the San José Scale?" and I will call upon Mr. C. E. Lyman of Middlefield to answer it.

MR. LYMAN: My experience is only that of two years in the application of lime and sulphur. I can say that in each case we have killed the scale wherever the application was made thoroughly, and have had no bad results. Trees that were affected by the scale and where half of the wood was dead in two years the tree has renewed its growth so it is now perfect. I think that all large growers in this state are united in the belief that the lime and sulphur mixture is the proper spraying mixture to use.

A MEMBER: About the railroad worm, I would like to learn what we are going to do with that.

DR. BRITTON: While we do not think we can kill this insect with a poisonous spray, we do think spraying may have a tendency to keep it away from the orchards. If you keep your trees well sprayed it is apt to go onto your neighbor's trees. The maggots also trouble the trees or get into the earth around the roots. Intensive cultivation will have a tendency to destroy them.

Question No. 2 was called for, "Will it prove a commercial success to spray thirty and forty-year-old apple trees for San José Scale?"

MR. J. N. BARNES: I am in the position of the other man who was here to learn rather than tell what I know. At the present time we are up against the problem of spraying for

this trouble. I think where we have failed so many times is in not using a powerful enough spray to reach to the tops of the trees. When we fail to cover the trees thoroughly with the mixture then we fail to get satisfactory results from our spraying. I think we should get pumps powerful enough to thoroughly cover our trees and try to exterminate this scale, not only on trees of this age and size but all other trees, whether young or old, large or small.

A MEMBER: My own experience has been somewhat limited along this line, but I believe that old orchards can be sprayed profitably and successfully; we find the expense of spraying is not great, and believe thoroughly in it.

MR. ROBERTS of New Jersey: One of our fruit growers thinks he has solved the problem; he has made a success in spraying large trees by the use of crude oil and it would be a very difficult thing to induce him to use anything else. He says there are two or three things to remember, and those are, plenty of powder, warm oil and not to put on too much. I think the big apple trees take care of themselves better than we think, and that a great many of the orchards will get along without spraying at all.

Question No. 6, "Along what lines are likely to be new developments in apple growing, as a result of San José Scale?" was answered by Mr. N. S. Platt in the following brief but excellent paper:

MR. N. S. PLATT: The backyard apple tree in city and country is beginning to die out on account of scale. Our soil and our climate has favored and would now favor the longest life and largest growth for an apple tree that it attains anywhere. It is through no weakness of tree that it is going out, but through the very robustness of the new enemy. The treatment that, according to our best knowledge, is necessary to preserve the trees, either cannot or will not be given and these trees will from present appearances continue rapidly to die out.

And on the farm the little orchard back of the barn is likely to go soon also. It is often made up of large trees that cannot well be treated. In fact, any trees that cannot be sprayed or that it will not pay to spray are likely to succumb to the scale. The scale is now not only widely spread as to area but also so

abundant in most parts of our state that developments are expected to take place rapidly and the next ten years will witness a decided change in the fruit gardens and tree fruit productions of our state.

Generally speaking, the scale can only be successfully treated in orchards. Also full-sized apple trees as they grow in this country have so far been found unmanageable when it comes to giving them the careful spraying necessary to control scale. At present, then, it looks as though the old trees would have to be abandoned and young orchards take their place. Then in the young orchard the effort will be to provoke early bearing and in all ways possible prevent trees from growing tall or large.

I would add a word on spraying for other troubles besides the scale. In an address by Prof. J. M. Steadman of Columbia, Mo., he recommended arsenate of lead made as follows: "Dissolve in half a bucket of water 4 ounces of arsenate of soda and in another half bucket of water 12 ounces of acetate of lead. They should be as near chemically pure as possible; ordinary commercial chemicals will not answer as a rule. After these are dissolved, turn together and allow to stand over night, when you will find that a chemical change has taken place. Use with 50 gallons of water as a spray for biting insects in place of Paris Green. This has never been known to injure the leaves, except possibly of peach trees."

President Putnam here announced the appointment of the following Standing Committee for the year 1907:

Legislation—J. H. Hale, Glastonbury; Elijah Rogers, Southington; J. C. Eddy, Simsbury.

Finance—N. S. Platt, New Haven; S. M. Foster, Westport; G. A. Hopson, Wallingford.

Membership—A. B. Cook, Farmington; Dudley Wells, 2d, Wethersfield; A. T. Henry, Wallingford.

Exhibitions—L. C. Root, Farmington; Geo. H. Hale, So. Glastonbury; Prof. A. G. Gulley, Storrs.

Injurious Insects—Dr. W. E. Britton, New Haven; C. D. Jarvis, Storrs; Willis E. Frost, Bridgewater.

Fungous Diseases—Dr. G. P. Clinton, New Haven; Oscar F. Atwood, Brooklyn; A. C. Innis, Ridgefield.

New Fruits—G. A. Drew, Greenwich; R. H. Gardner, Cromwell; T. L. Brown, Black Hall.

Markets and Transportation—J. N. Barnes, Yalesville; Chas. E. Lyman, Middlefield; S. A. Flight, Highwood.

Auditors—Geo. W. Staples, Hartford; Andrew Kingsbury, Coventry.

PRESIDENT PUTNAM: The time has now arrived for our final adjournment, and unless there is other business to come before the convention I will declare this Sixteenth Annual Meeting of the Connecticut Pomological Society adjourned.

It was 4.45 o'clock when the final adjournment came, but many of the members lingered for an hour or so longer, chatting and discussing the many pleasant events of the meeting, as well as giving a last look at the fruit display and implement exhibition in the lower hall. All seemed loath to say good bye, emphasizing what is always the most valuable feature of these horticultural gatherings—the social side, and the interchange of ideas and experiences regarding the work in which each and all are mutually interested.

Before the beautiful and attractive stage setting of fruits and flowers was finally broken up, the newly-elected officers and committees formed a group on the stage and were photographed by flashlight. A good reproduction of this picture appears on page 160.

With the close of this Sixteenth Annual Meeting it was the general expression of all who had attended that it had been a splendid success, notwithstanding the fact that the opening was handicapped on account of the heavy storm. The several speakers were all on hand, with the exception of Mr. Allen of Maryland, and each proved to be of exceptional ability and a master of his or her special subject, the whole program being of perhaps a higher order than that of any previous annual meeting, showing the progressive spirit that is constantly aimed at in our fruit meetings.

Possibly, the comment was justified that the program was too full—"the table too heavily laden with good things"—and

not quite enough time left for discussions and questions, but this fault can be remedied another year, and after all every feature was *so good*, who would have voted to leave out any one of them?

The musical program, a new feature this year, added much to the pleasure of the session, and all were delighted with our lady speaker—Mrs. Fullerton.

The thanks of the Society are due all who contributed in any way to the success of the meeting and especially to those whose efforts resulted in the fine decorations of the hall and stage.

The fruit display was arranged by Messrs. Root and Cooke of Farmington, Hale of Glastonbury, Manchester of Bristol and Professor Gulley. The fruit used in making up the display was contributed by these gentlemen, also Mr. G. W. Staples of Hartford; Newton, Robertson & Co., Hartford, who furnished splendid boxes of native and Western apples; Mr. Woody of Colorado, who was justly proud of his dark red Western fruit, and the City Hall Grocery of Hartford, who sent in an attractive basket of fruits.

A larger number of new members were added to the roll than in any previous year, and all in all the meeting was a grand one, marking a most auspicious beginning of a prosperous new year for the Society and for the fruit growers of Connecticut.

Report of the Special Committee on Fruit Exhibit, With List of Awards.

CLASS I.

LARGEST AND BEST DISPLAY OF FRUITS.

First Premium to E. E. Brown, Westland Farm, Pomfret..... \$3.00

CLASS II.

BEST COLLECTION FIVE VARIETIES OF MARKET APPLES.

First Premium to Connecticut Agricultural College, Storrs..... \$2.00

CLASS III.

BEST COLLECTION, FIVE VARIETIES, DESSERT APPLES.

First Premium to Connecticut Agricultural College..... \$2.00

CLASS IV.

BEST SINGLE PLATE OF APPLES.

Baldwin.

First Premium to G. W. Staples, West Hartford..... \$.50
Honorable mention, J. L. Rice, A. B. Cook and E. E. Brown.

R. I. Greening.

First Premium to A. B. Cook, Farmington..... \$.50

King.

First Premium to E. E. Brown, Pomfret..... \$.50
Honorable mention, G. W. Staples and H. E. Savage Sons, Berlin.

Roxbury Russett.

First Premium to Thomas Callahan, Newington..... \$.50

Ben Davis.

First Premium to L. J. Robertson, Hartford..... \$.50

Peck's Pleasant.

First Premium to L. J. Robertson..... \$.50

Fallawater.

First Premium to A. B. Cook..... \$.50

Blue Pearmain.

First Premium to L. J. Robertson..... \$.50

Stark.

First Premium to Dennis Fenn, Milford..... \$.50

Sutton Beauty.

First Premium to Dennis Fenn..... \$.50

Newtown Pippin.

First Premium to E. E. Brown..... \$.50

Golden Pippin.

First Premium to Thomas Callahan..... \$.50

Northern Spy.

First Premium to G. W. Staples..... \$.50

<i>Sweet Baldwin.</i>	
First Premium to G. W. Staples.....	\$.50
<i>Famuse.</i>	
First Premium to G. W. Staples.....	\$.50
<i>Wagener.</i>	
First Premium to G. W. Staples.....	\$.50
<i>McIntosh.</i>	
First Premium to G. W. Staples.....	\$.50
<i>Tolman Sweet.</i>	
First Premium to H. E. Savage Sons.....	\$.50
<i>Tuttle.</i>	
First Premium to H. E. Savage Sons.....	\$.50
<i>Flushing Spitzenburg.</i>	
First Premium to H. E. Savage Sons.....	\$.50
<i>Golden Russett.</i>	
First Premium to H. E. Savage Sons.....	\$.50

CLASS V.

BEST SINGLE PLATE OF PEARS.

<i>Anjou.</i>	
First Premium to H. E. Savage Sons.....	\$.50
<i>Vicar.</i>	
First Premium to H. E. Savage Sons.....	\$.50

CLASS VI.

BEST PACKED AND MOST ATTRACTIVE PACKAGE MARKET APPLES.

First Premium to A. B. Cook (Baldwin)	\$2.00
(While this box of fruit is awarded First Premium, it is done so expressly because of being the best packed and most attractive package and the most desirable market apple for this section.)	

ADDITIONAL DISPLAYS.

Chas. E. Bassett, Fennville, Mich., exhibit of King, Red Canada, Northern Spy and other apples, which are especially attractive on account of size and color.

U. T. Cox, Rockwood, O., exhibited fine specimens of the Rome Beauty apple of high color and fine quality.

Geo. A. Woody of Colorado exhibited fine specimens of Arkansas Black, Newtown Pippin, Jonathan, Spitzenburg, Arkansas Beauty and other Colorado-grown apples which deserve special mention for color, size and firmness.

The Connecticut Agricultural College exhibited 61 varieties of apples, from the earliest to the latest. The exhibit as a whole shows conclusively that the soil of Connecticut is particularly adapted to growing apples and especially the Baldwin. The College fruit shows the value of spraying and careful handling, and the College officials deserve great credit for furnishing such a list for the benefit of the fruit growers of Connecticut.

ORLANDO HARRISON, Berlin, Md.

HENRY D. LEWIS, Anandale, N. Y.

Report of the Special Committee on Implement Exhibit.

The following is a list of the firms represented in the extensive display of horticultural implements and supplies, spraying outfits, etc. :

American Horticulture Distributing Co., Martinsburg, W. Va.

A splendid exhibit of the Niagara gas sprayers, in actual operation; also the "Target Brand" scale destroyer, a valuable oil preparation, and a full line of insecticides and fungicides. This exhibit was in charge of Mr. A. N. Brown of Delaware and Mr. E. V. Titus of Long Island.

Cadwell & Jones, Hartford.

Exhibit of the Deming spray pumps, "Scalecide" for spraying for scale, pruning implements, poultry supplies, etc.

Harvey Jewell, Cromwell.

Hardie spray pumps and spraying nozzles.

Goulds Mfg. Co., Seneca Falls, N. Y.

The Pomona barrel spray pumps and the new Mystry, Jr., nozzle.

Fairbanks Co., Hartford.

Gasoline engines and a complete line of scales and general hardware and small tools.

D. S. Walton & Co., New York.

Complete exhibit of baskets and fruit packages.

Coles & Co., New York.

Display of peach and berry baskets, picking baskets, crates, etc.

Southside Mfg. Co., Petersburg, Va.

Apple boxes.

Botcher Fertilizer Agency, Hartford.

Samples of fertilizers, insecticides and fungicides, prepared in convenient form for spray mixtures.

The Cutaway Harrow Co., Higganum.

Exhibit of the well-known Clark's double action Cutaway harrows.

Barnes Bros. Nursery Co., Yalesville.

Attractive exhibit of nursery stock.

C. R. Burr & Co., Manchester.

General line of nursery stock.

Gardner's Nurseries, Cromwell.

Trees and plants.

The Connecticut Experiment Station, New Haven.

A very instructive exhibit of spraying materials, also various types of spraying outfits, old and new, showing the improvements that have been made in this line of machinery during the last few years. The best styles of nozzles for different kinds of work were also shown. This, in addition to the information furnished by the members of the Station staff in attendance, served to make the Station exhibit one of the most valuable of any at the meeting.

The Society desires to express its appreciation of the efforts of the Station in making up so excellent an exhibit, and also to all others who contributed in any way to the display in the lower hall, trusting that these same firms may be represented at future meetings. And your committee would further suggest that if the implement exhibit continues to grow as it has in the past few years, the Society would do well to consider arranging for a larger hall where ample space can be allotted to each exhibitor for the proper display of his goods and where actual demonstrations, especially of spraying machinery, may be made.

A great deal of interest is displayed in these exhibitions by all who attend our meeting and careful study is given each exhibit, showing conclusively that it is one of the most profitable features of a horticultural convention, both for the manufacturer and the fruit grower.

Let us have a still larger display next year!

CHAS. I. ALLEN,

W. F. PLATT

E. ROGERS,

Committee.

ADDITIONAL NOTES OF THE ANNUAL MEETING.

As has already been explained, the "blizzard" storm of February 4 and 5 prevented the opening of the annual meeting on the day scheduled, but as all of the officers of the Society and many of the speakers and delegates from distant States had reached Hartford the previous evening before the storm had blocked travel, it was proposed to occupy the time on Tuesday afternoon with an informal gathering for an exchange of greetings and discussion of experiences, always a most natural and interesting feature whenever farmers and fruit growers come together. Accordingly, our hall being ready for use, those present, which included quite a few members who were able to get in from nearby towns, were invited to assemble by President Eddy. Prof. Gulley, ex-President of the Society, was asked to extend a welcome to the visiting fruit growers, which he did in a most pleasing manner, referring to the fact that probably never before in the history of our Society had we been favored with so many visitors from distant States. No less than eight States were represented by delegates or by men who had been invited to speak before the Society. The professor said this should mean great things for our little State convention and predicted a very helpful and successful meeting when it should finally open on the morrow.

Prominent fruit men present were then called on to address the gathering in an informal way and the afternoon was very profitably occupied in listening to them. A brief summary of the various speakers' remarks follows:

MR. C. E. BASSETT, Secretary Michigan State Horticultural Society:—I bring the greetings of the Michigan society to you; our society was established 38 years ago and is now in a very healthy condition. We have discovered that greater benefits result in these gatherings from arousing enthusiasm among the members than by giving them much information. We need to be enthused. I believe we do not lack knowledge but do lack the necessary enthusiasm to go ahead and use the knowledge we already possess; we also need to encourage each other in our work.

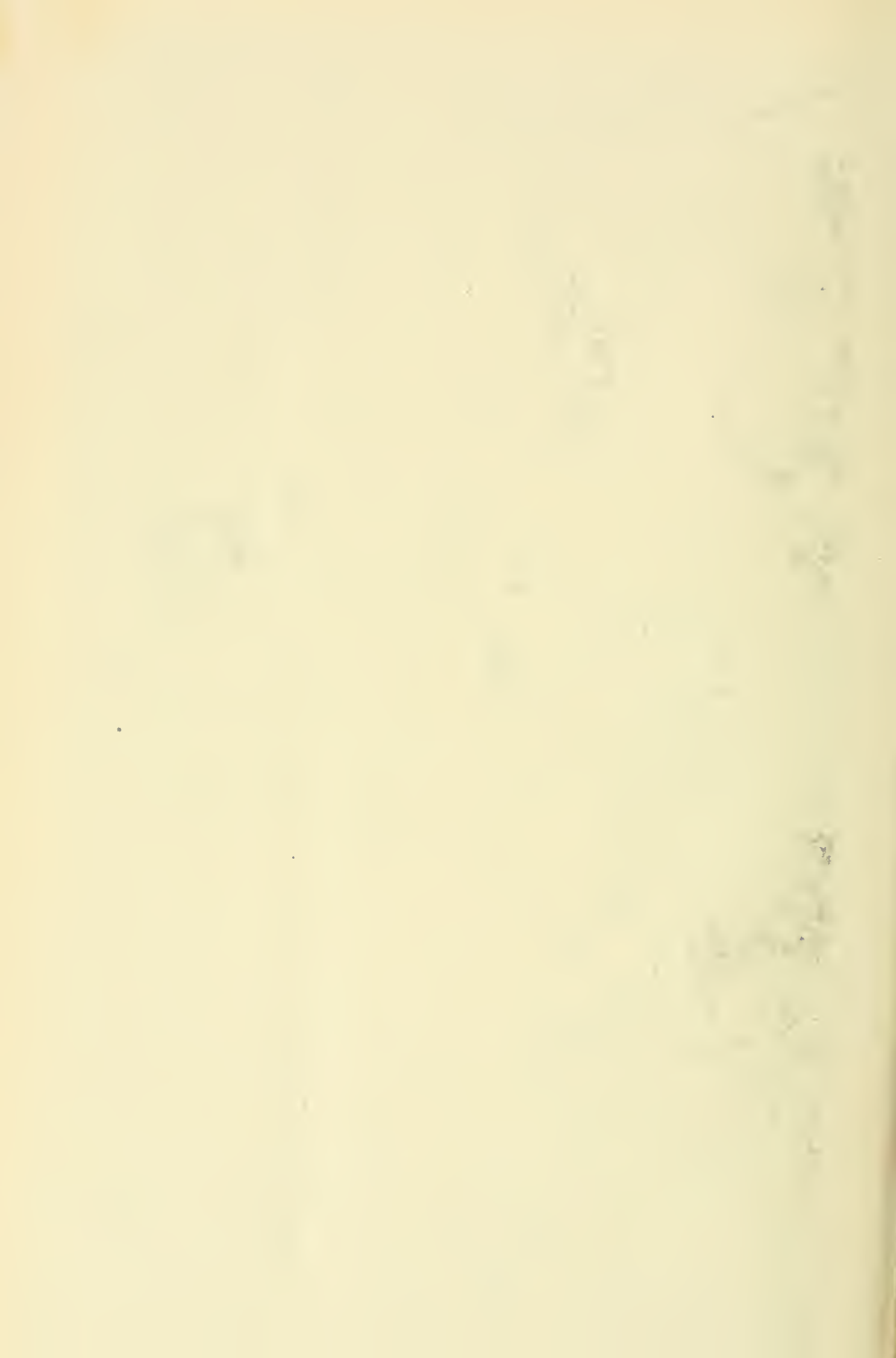
MR. U. T. COX, President, Ohio State Horticultural Society: This is my first trip to this part of the country and I am glad to be here, because my great grandmother was born here in 1799. It is hilly country where I live; I think possibly you have better land here than we have, but our hills contain something you have not—we are in the coal region, also the iron region; there are plenty of people about us and we have good markets for our products; there is a good living to be made by any person who has the necessary pluck and energy to get ahead. On our hills the people who have learned to do the business properly have quit cultivating the land and have commenced to mulch. It is the proper thing to do; you can't cultivate the hills; if you do they will all wash away. We take pride in being a pretty thrifty community and in raising good apples. I am satisfied that the man who will study the conditions and stay by the farm will have better success in the future than he has had in the past.

MR. HORACE ROBERTS of New Jersey, President, State Horticultural Society: In New Jersey the conditions are somewhat dissimilar to those of Connecticut, but only partly so. The northern part of our State corresponds with Connecticut, and is hilly; the southern part is more adapted to market gardening. When we have our meetings in Trenton we have practically two countries exhibiting products. The northern part of the State favors one kind of culture and fruit, the southern portion favors another kind entirely, and we each of us say our way is the best, and it is for our particular localities. I am from the southern portion of the State and our conditions are very different from yours. We had San Jose Scale first. We sent specimens to Washington and were told by the authorities there that it was insignificant and would not amount to anything; later on they sent for other specimens and then told us what it was, but it was too late, as it had spread through New Jersey. No one could tell us what to do and we had to feel our way. Our loss was tremendous, the peach industry of New Jersey simply went out of existence. Now we are starting again and feel that we can control the enemy and it will not be many years now before you will again hear of New Jersey peaches. We have used all methods of fighting

PLATE VI.



GROUP OF NEWLY-ELECTED OFFICERS AND COMMITTEES TAKEN ON THE STAGE AT THE SOCIETY'S 16th ANNUAL MEETING, HARTFORD, 1907.



the scale since 1893; we have always been trying something new, and all the time the scale gained on us. Last year we turned a new leaf and instead of trying to cripple the scale we went at him in earnest. We learned that soluble oil will kill the bulk of the scale, from 98 to 99 per cent; that it also left the tree in a condition for the spread of the scale, and if we gave the trees one treatment the next year we would be still worse off; the oil killed the bulk of the scale, sulphur killed the balance and stopped the spread of the pest. It was effective. During harvesting time last fall I had two nurserymen in my packing house where I had apples stored from all over my farm and they failed to find any scale on the apples. That shows the result of a little persistent effort.

In our State we are just starting a short course in our agricultural college; we hope and have faith it is but the beginning for the young men; we look for big things from this little beginning.

MR. E. C. MILLER of Massachusetts: I am a great believer in the possibilities of all phases of agriculture in New England. When I saw in your exhibit today some apples from Oregon and Colorado and heard those who had charge of them describing the possibilities of fruit growing in those States it didn't discourage me one bit, for I know there are as great possibilities in New England. We must use the knowledge we already have; we need inspiration, making use of the knowledge we have and all we can acquire. Our locality is peculiarly adapted for the growing of apples and other fruit. Our hills are really the southern part of the Green Mountains and are well being utilized for the growing of fruit and the farmers are beginning to realize the possibilities of the apple crop and are depending on that crop to pay the mortgage on the farm, as well as the interest money.

Regarding insect pests. The San Jose scale has not bothered me particularly. I believe with a proper spraying outfit and the right mixtures you can control any pest that comes. I believe it is given to man to have dominion over the fowl of the air and the insects, as well as the beasts of the field. Get after the insects with a spray pump and exterminate them.

MR. WOODY of Colorado: I am often asked why the

apples we raise are so pretty. The only answer I can make is, that our country is a slick one. I am interested in horticulture from a commercial standpoint. I want to live and have my business where I can make the most money. The only way to determine whether this is the best part of the country is to go somewhere else and look into the fruit growing interests. When you find the place where fruit is grown most profitably, if you are to make that your business, why settle there. That is what I have done. I have looked the field over from a purely commercial standpoint. I want to say to you that I like the patriotism you Connecticut people show—and I find the same thing all over the country, but this is not the greatest apple district there is in the country. You have a fine country here and I don't think you can find a section of the country that will grow better peaches than will Connecticut. I know you have had your failures; that the frost have killed the orchards; I know you have been injured by the scale and other things, and I also think if I were not in what I consider a better country for apple growing, I would come to Connecticut and plant a peach orchard. We are not bothered much with the scale. When it got into our orchards we threshed it out of them and as there is nothing else around there but cactus and sand it starved to death and we haven't been bothered with it since. It is the same with the moth. It is a day and night business with us until we get rid of it.

I believe you are going to win in Connecticut on the apple crop; as you have already won on the peach crop. Regarding varieties, I don't think you grasp new varieties as the Western people do. Our country grows trees quickly and we are always trying new varieties. We ship to Texas; they would take all the fruit we can grow. I believe the seedless apple is coming. The Arkansas Black is pretty nearly seedless; it is hardly so juicy as the Baldwin, more of the flavor of the Wine-sap and a hard meated apple; they are good croppers; hard as bullets; that is the reason you want to grow them; you can ship them all over the world.

MR. A. WARREN PATCH, the Boston Commission Merchant: I only get the market end of the apples, and my views have been expressed here so often I hardly think it is necessary

for me to say anything to you. The price of apples has not advanced as much as the operators thought last September it would, and it is a question with them now if they are going to come out even. We have had some Colorado apples put in storage and they have come out as perfect as they went in, bright and hard and firm, not a decayed apple in them. We have many Baldwins and, in fact, a supply of all the old varieties. Greenings this year have met with more disfavor than any year I can remember. The trade all want a colored apple for eating and cooking. The same state of affairs exists in Chicago. In the Boston hotels they ask for large apples; in New York they call for smaller ones, and it is difficult to get rid of large apples in the New York markets.

My advice to the farmers is, keep your boys home on the farm. And I say to the boys, stay at home on the farm.

MR. ETHELBERT BLISS of Massachusetts: I think if more of us farmers would take advantage of our opportunities we would not to be obliged to go West to succeed in fruit growing. Most of us who live in hilly towns have some land we don't consider worth very much, practically worthless. If that land could be cleared and set out to peach trees it would produce large results. We also have the advantage of good markets and near at hand here in Connecticut. A neighbor of mine came from the city and bought a farm—he knew nothing about farming and has been making experiments. A few years ago he cleared a little land and put out a few peach trees, somewhere between 550 and 600 trees; the first crop he got from those trees was 1,100 baskets, bringing him \$800. This last season from that same plot of ground he took in \$2,800. He has 250 Elbertas and from those trees he picked 1,500 baskets of fruit. I tell this to show some what can be done when effort is applied in the right direction.

MR. J. R. CORNELL, Poughkeepsie, President New York State Fruit Growers' Association: The West has its troubles as well as you have here, and I think we have a few of our own in New York. We grow a few apples in the Hudson River valley; perhaps we can't equal the Oregon apples, but our fruit sells pretty well in the markets and it is a fairly profitable proposition with us and we don't just feel like giving up the

apple growing industry in New York. We have an organization representing the New York State Fruit Growers; we work along somewhat different lines from some other organizations; we not only do an educational work but we work co-operatively in buying fertilizers and chemicals. Our organization is young, but as youth generally means enthusiasm we have every reason to believe we shall succeed. We are growing a large amount of small fruits, the same as you are doing here, and some peaches; the apple crop does not cut as big a figure in the eastern part as it does in the western portion of the State; the great commercial orchards lie in the western portion, although we do have some pretty good paying orchards in the eastern districts.

MR. ORLANDO HARRISON of Maryland, President American Association of Nurserymen: First, I want to tell you that I believe in a large crop of boys, and I want them kept on the farms, too.

Our conditions are very different from yours. In the eastern portion where there is rather of a sandy loam they raise pears, peaches and strawberries; in the western part we strive to grow the large red apple. We find by visiting neighboring societies we have made a decided gain in our information and that while our conditions are different we learn many valuable things from each other.

I am especially interested in the boys, and I would like to ask if the fathers and mothers are doing all they can to keep the boys with them on the farms. You ought to appreciate what Professor Gulley is doing to keep the young men in this State at home on the farms. Without the boys we cannot hope to succeed. We must make them comfortable and take care of them in a proper manner.

I believe we have in Maryland soil that will grow as fine apples as can be grown in any State, provided we put vim into our work; we lack energy. Our society meets in December, we include the horticultural, floricultural and vegetable interests in one society, in fact, any and all tillers of the soil, and we try to make the society of real benefit to each members.

MR. B. G. PRATT of New York City, the originator of "Scalecide": I really dislike to appear on the platform during

a meeting of this kind because it seems like advertising. I wish simply to say a few words regarding our production,—but first to say that I am a Connecticut boy two generations removed and so I feel at home here. When I first went into the business I didn't know anything about San Jose scale, except that it killed 20 apple trees in my little orchard. I didn't know what to do, and when I did find out what to do it was too late; they were dead; unfortunately, 95 per cent of the fruit trees in New Jersey went the same way. We used to have all the apples we wanted only 6 or 7 years ago; our children can remember the time, but now we have to buy our apples.

We must not underrate the fight we have on hand. I am glad to say there is more interest being taken this year than last year in the subject of the San Jose scale. Regarding our preparation, there has been on preparation, no remedy for the scale has received so much favor in so short a time as the soluble oils. It is a pleasant and an easy task to use soluble oils. Fill your spray tank with water, measure out the amount of oil you need, pour the same in the tank and start your agitator, and you are ready for work. If you have some left in the tank it is all ready for use the next day. If your mixture of lime, sulphur and salt is not all used it has to be thrown away. There is no getting away from the fact that our preparation absolutely kills the scale. You should use high power and a fine nozzle and cover every part of the tree; if you use a low power pump and coarse nozzle you will not get the same good results.

Professor C. S. Phelps of Connecticut was the closing speaker and emphasized Connecticut's advantages in the following words:

I notice that some of our Western friends are beginning to see some of the great things that belong to Connecticut,—our soil. Connecticut conditions are not so different from those you find in other parts of the United States, but somehow there is an attractiveness about our hills that no one seems able to lose when he has once seen them. I believe we have conditions in this State favorable to the production of the best crops of fruit, and I do not except Colorado or Oregon,—and

possibly more favorable than you will find in any part of the United States. I can take you into the western part of the State and show you a farm of 500 acres, with orchards ranging in age from 75 years to 10 years, that has conditions which are favorable for the successful growing of fruit, especially apples; that farm has been famous for producing some of the finest apples in the country. Many of you may know that I refer to the farm formerly owned by the late Secretary of the State Board of Agriculture, T. S. Gold, and now being handled by his son. The conditions here in Connecticut are especially fine in one respect that you don't find in any or many other parts of our country, and that is, we have the markets right at our doors; we don't necessarily have to place our fruit in cold storage, although sometimes it may prove an advantage to us to do so; there is a demand for a much greater quantity of fruit than we are able to supply right at our doors from month to month and week to week and we need to go on producing the highest quality of fruit. If you do produce the highest grade of fruit you will find there is a constant demand for it and that demand will bring prices corresponding to the labor you have put into the business.

PART TWO.

A Brief Record of Field Meetings, Exhibitions, Institutes, Etc., Held in 1906.

Summer Field Meetings.

At a meeting of the Society's Executive Committee early in the summer, it was decided to carry out the usual series of summer field days upon the farms of members who were willing to entertain the Society, and the Secretary was directed to look up locations for such meetings. Correspondence with some of the leading fruit growers in the State resulted in promises for a number of meetings, extending through the berry, peach and apple seasons, but the unexpected wet season with the consequent delay to all farm work made it necessary to withdraw the invitations for the present at least, much to the regret of every one.

Members have come to look forward to these annual summer gatherings as being the most enjoyable and profitable of all the many good meetings of our Society and no one disliked to be obliged to give them up more than those who had promised to act as hosts.

The grower who entertains his fellow farmers for a day and invites their study and criticism of his farm and orchards often derives more benefit therefrom than do those who are the visitors.

It was especially to be regretted that no suitable place could be found for the usual "Peach Meeting," for with the abundant peach crop of 1906 such a gathering in the interests of peaches would have been of immense value to all concerned in their production and handling. However, we are all looking forward with interest to the coming season, when some of

these deferred invitations will be renewed, and in accepting them the Society will once more inaugurate an active "summer campaign."

With all the numerous problems now confronting the growers of fine fruits it is of the utmost importance that they should get together as often as possible during the growing season and study these problems at first hand in the field and in the orchard.

That the season of 1906 might not go by without at least one field day outing, the officers of the Connecticut Experiment Station very kindly came forward with an invitation to the Society to visit them and accordingly the first and only field meeting of the season was held at the station in New Haven on July 16, for which the following notice was sent out:

Field Meeting at the Connecticut Experiment Station, July 16, 1906.

"Director Jenkins and his assistants at the Connecticut Experiment Station cordially invite the members of the Society to visit the Station on Monday the 16th, making it the occasion of a popular Field Day, and combining both pleasure and profit.

"The various departments of the Station, including Laboratories, New buildings, Greenhouses, Museum, etc., will be open for inspection. Practical demonstrations of Spraying Work, in charge of Prof. Britton, will be given. Also a trip will be made to the New Experimental Grounds at Mt. Carmel, where can be seen growing crops of corn, potatoes, clover, alfalfa, etc.; experiments to control potato blight, also insects and diseases on various truck crops. All this will be of greatest interest to farmers and fruit growers.

"No one should miss this opportunity to visit the Station!"

"Dinner will be on the basket-lunch plan, according to our usual custom, each member attending to bring well-filled baskets. Coffee, lemonade, dishes, etc., will be supplied by the Station.

"After lunch there will be speaking and discussion of a practical and timely nature.

"Members!—Let us turn out largely and accept this invitation. Bring the Ladies and your friends and enjoy the day. Take a few hours from your work and make a special effort to come!"

A goodly number of members and friends gathered at the Station on the morning of the 16th to enjoy the day's outing. It was an ideal day as to weather, clear and warm; in fact, so good a day that many felt it necessary to forego the meeting and take advantage of the weather in pushing forward their haying, consequently the attendance was not as large as it otherwise would have been. Those present occupied the morn-



ON THE LAWN AT THE CONNECTICUT EXPERIMENT STATION, NEW HAVEN.
FIELD MEETING OF THE SOCIETY, JULY 16, 1906.



PARTIAL VIEW OF EXHIBITS.
NINTH ANNUAL EXHIBITION AT WILLIMANTIC, 1906.

ing hours in visiting the various buildings and departments devoted to the Station work under the guidance of the Station staff. Everything connected with this splendidly conducted institution was of the greatest interest to the visitors and much useful information was gained in relation to what is being done here for the benefit of Connecticut's agriculture. Since our last visit to the Station great progress and improvement in the equipment was noted, especially in the State Entomologist's department and also the new building devoted to the work of the corn specialist and the forestry department. No institution of a like character in any State stands higher in its work than does our own State Station and every farmer should feel proud of it and avail himself of its help in solving the many problems in connection with his work.

Shortly after noon a bountiful lunch was enjoyed at the tables spread on the shady lawn in front of the main building, and after all had done full justice to the good things provided by the ladies, who were present in large numbers, President Eddy of the Society called the company to order for a brief hour of impromptu speaking and discussion. In the absence of Dr. Jenkins, the Director, Prof. A. L. Winton acted as host and welcomed the visitors in his usual happy manner. He said the Station was always glad to entertain the Pomological Society, as well as all other farmers' organizations and thought such occasions as this were well worth a great deal in bringing the Station workers into closer acquaintance with those for whom the Station was working.

Secretary H. C. C. Miles was called upon to respond in behalf of the Society and besides expressing the belief that a strong feeling of co-operation had always existed between the Society and the Station, he took occasion to announce plans for future work of the Society. Prof. A. G. Gulley spoke next and called the attention of those present to the fact that the annual exhibition was to be held at Willimantic this year and urged all the growers to prepare for it. Dr. Britton spoke pleasantly of the work in his department,—that of entomology.

Dr. G. P. Clinton explained the work he was engaged in with fungous diseases.

The next speaker was Prof. L. A. Clinton, Director of the

Storrs Experiment Station. He spoke in hearty endorsement of the plan of holding field meetings and believed they were capable of doing great good.

Mr. C. D. Jarvis, the new assistant in horticulture at the Connecticut Agricultural College, told of his recent field of work in New York State among the fruit growers and what he hoped to do in Connecticut.

At this point, inquiries as to the present outlook for the peach crop started an interesting discussion along that line and brought out some figures from leading peach growers present, which indicated a very large crop of fruit in the State. With favorable weather from now on a heavy crop of fine quality would be harvested.

State Forester Hawes gave some interesting information about the work being done to improve the forests of the State. Others who addressed the meeting briefly were T. L. Brown of Lyme, formerly a large fruit grower in Michigan; N. H. Sherwood of Southport, and N. S. Platt of New Haven.

The speaking was then brought to a close and most of the company, which now numbered over 100, took special trolley cars for a trip to the Station's new trial grounds located in Mt. Carmel, a few miles away.

With this was rounded out a day of unusual pleasure and profit, and each visitor voiced his thanks to the Station officials for having given us the opportunity for so pleasant an outing.

Those who stayed at home will never know how much they missed!

The Ninth Annual Exhibition of Fruits, 1906.

SCHEDULE OF PREMIUMS OFFERED.

FIRST DIVISION—COLLECTIONS.

	1st.	2nd	3rd.
Class 1. Best general collection of fruits by grower, of which not more than two-thirds to be of apples. See Rule 7.....	\$10.00	\$5.00	\$3.00
Class 2. Best collection, 15 varieties of apples.....	5.00	2.50	1.00
Class 3. Best collection, 10 varieties of apples.....	3.00	1.50	.75
Class 4. Best collection, 8 varieties of apples, for general purposes.....	2.00	1.00	.50
Class 5. Best collection, 5 varieties of apples, for market only. See Rule 7.....	3.00	1.50	.75
Class 6. Best collection, 12 varieties of pears.....	5.00	2.50	1.00
Class 7. Best collection, 6 varieties of pears.....	2.00	1.00	.50
Class 8. Best collection, 12 varieties of grapes.....	5.00	2.50	1.00
Class 9. Best collection, 6 varieties of grapes.....	2.00	1.00	.50
Class 10. Best collection, 6 varieties of peaches.....	2.00	1.00	.50

SECOND DIVISION—SINGLE PLATES.

Class 1. Best single plates of following varieties of Apples, each.....	\$1.00	\$.50	\$.25
Red Astrachan, Sweet Bough, Williams' Favorite, Oldenburg, Porter, Gravenstein, Red Bietigheimer, Fameuse, Fall Pippin, Maiden Blush, Twenty Ounce, Hurlburt, Wealthy, Rome Beauty, Baldwin, Talman Sweet, Cogswell, Hubbardston, Jonathan, Gilliflower, King, Northern Spy, Belleflower, Pewaukee, McIntosh, Red, Red Canada, Sutton, Wagener, Westfield, Jacob's Sweet, Fallawater, Golden Russet, Roxbury Russet, Newtown, Pippin, Peck's Pleasant, R. I. Greening, Ben Davis, Hyslop Crab, and for all other worthy varieties, premiums of one-half the regular amounts are offered: That is, 50c., 25c., and 15c., respectively.			
Class 2. Best single plate of following varieties of Pears, each.....	\$1.00	\$.50	\$.25
Clapp's, Bartlett, Bore, Angouleme, Louise Bonne, Diel, Onondaga, Anjou, Lucrative, Boussock, Buffum, Howell, Flemish Beauty, Vt. Vernon, Seckel, Clairgeau, Lawrence, Sheldon, Easter Buerre, Keiffer, Le Conte, Neils. Of other worthy varieties, not to exceed ten.			
Class 3. Best single plate of following varieties of Grapes, each.....	\$1.00	\$.50	\$.25
Moore's Early, Brighton, Concord, Eaton, Hartford, Wilder, Worden, Isabella, Agawam, Delaware, Diana, Diamond, Jefferson, Campbell's Early, Clinton, Green Mountain, Catawba, Lindley, Salem, Empire State, Martha, Niagara, Pocklington. Of other worthy varieties not to exceed ten.			
Class 4. Peaches and Plums, each valuable variety...	\$1.00	\$.50	\$.25

Class 5.	Quince, each valuable variety.....	1.00	.50	.25
Class 6.	Grapes grown under glass, one bunch each variety.....	1.00	.75	.50
Class 7.	Cranberries, best exhibit any variety.....	2.00	1.00	

THIRD DIVISION—CANNED FRUITS, JELLIES, ETC.

(Wives and daughters of members may compete in this division without payment of any membership fee.)

Class 1.	Best collection canned fruit, 15 varieties.....	\$6.00	\$3.00	\$2.00
Class 2.	Best collection canned fruit, 8 varieties.....	4.00	2.00	1.00
Class 3.	Best collection canned berries, 6 varieties. See Rule 8.....	3.00	2.00	1.00
Class 4.	Best collection pickles, 6 kinds, one quart each.....	3.00	2.00	1.00
Class 5.	Best collection jellies, 6 kinds.....	3.00	2.00	1.00
Class 6.	Best single can of the following fruits..... Strawberries, Blackberries, Black and Red Raspberries, Currants, Gooseberries, Pears, Yellow and White Peaches, Apples, Quinces, Cherries, Pineapples, Euro- pean Plums and Japan Plums. (See Rule 8.)	.75	.50	.25
Class 7.	Best single jar jelly made from above named fruits.....	.75	.50	.25
Class 8.	Best sample unfermented fruit juice, each kind, not to exceed six.....	.75	.50	.25

FOURTH DIVISION—NUTS, ETC.

Class 1.	Best specimen any variety of cultivated nuts.	\$1.00	\$.50	\$.25
Class 2.	Best sample of native nuts, any kind.....	1.00	.50	.25
Class 3.	Best collection native nuts, made by boy or girl and correctly named (exhibitors in this class not required to be members of the Society).....	2.00	1.00	.50
Class 4.	Best arranged table piece of home-grown fruits.....	2.00	1.00	.50
Class 5.	Best packed barrel, choice market apples...	5.00	2.50	1.00
Class 6.	Best box, choice apples.....	2.00	1.00	.50
Class 7.	Best standard basket choice peaches.....	2.00	1.00	.50
Class 8.	Best peck basket choice peaches.....	1.00	.50	.25
Class 9.	Best package choice grapes.....	1.00	.50	.25
Class 10.	Articles not classified, for which discre- tionary premiums may be awarded.			

RULES OF THE EXHIBITION.

Rule 1.—All exhibits must be received for entry not later than noon of Tuesday, September 18, and must be in place by 6 p. m., as judging will begin promptly on opening of second day—Wednesday. (This rule will be strictly enforced.)

2. Entries of collections in First and Third Divisions should be made with the Secretary on or before Saturday, September 15, using enclosed entry blank for the purpose, that proper table room may be prepared.

3. All articles entered, except in Fourth Division, must be grown or prepared by the exhibitor.

4. All fruits shall be correctly labeled (if possible) and except grapes and crab apples, five specimens, neither more or less, shall make a plate, either single or in collections.

Of crabapples ten specimens, and of grapes three bunches, shall make a plate, except where noted. The collections also shall embrace just the required number of plates.

5. No exhibitor shall make more than one entry for the same premium, nor enter the same plate for more than one premium.

6. In the various collections the value of the varieties shown, as well as the conditions of the specimens, will be considered in making the award.

7. Entries in Division 1, Class 1, must not contain over two-thirds apples, or over one-fourth of any other single class of fruit. Division 1., Class 5, is intended to draw out the growers' ideas of value of varieties. In making the award this will be considered as well as the condition of the specimens shown.

8. Entries of different kinds of Canned Fruit must be self-evident; that is, separate varieties of "red raspberries" or "yellow peaches" will not be considered as distinct kinds. Any or all cans to be opened for sampling at the discretion of the judges.

9. Lists of varieties in all collections must be made and placed with entry card on collection.

10. As the object of the Society is to encourage the growth of fruits of fine quality, wormy or diseased specimens or those infested with San Jose Scale will not be allowed to compete.

11. Premiums will be awarded to members of the Society only, except as noted in Third Division.

12. No exhibit shall be removed without the consent of the committee, until the close of the meeting. Exhibitors are requested to state whether fruit is to be returned to them, or donated to the Society.

The above is the list of prizes that was offered by the Society at its Annual Exhibition last fall, held September 18, 19 and 20 at Willimantic, in connection with the annual fair of the Horseshoe Park Agricultural Association.

For several years it has been the policy of the Society to take its exhibit to a different section of the State each season, consequently there is some little rivalry among the Fairs of the State to secure our Fruit Show.

As indicated in the report of the Secretary, six different fair associations sent in invitations, viz.: Rockville, Willimantic, Berlin, Newtown, Greenfield Hill and Waterbury, all making very liberal offers. As we had never exhibited in the eastern part of the State, the Executive Committee, after very careful consideration of the matter, decided in favor of Willimantic and accordingly the exhibition was held in that city, in combination with their annual Fair.

While the show was, as usual, very creditable to the Society and the fruit growers who contributed exhibits, for several reasons the amount of fruit shown was not as large as in former years. This was accounted for from the fact that the location was not convenient for most of the members, the show was held earlier than usual and encountered extremely hot weather, several of our oldest and largest exhibitors were absent and particularly because of the light apple crop in the State.

On the other hand, these deficiencies were made up for, quite largely, by the prominent part taken in the exhibition by the State Agricultural College, which being located nearby, was able to contribute a large number of splendid exhibits. Prof. Gulley and his assistants were untiring in their efforts in behalf of the show, staging a great variety of fruits which formed an unusually attractive as well as instructive display. In addition the season was especially favorable for an exhibit of Connecticut peaches and seldom has a finer show of this fruit been seen on our tables.

Many new exhibitors were attracted to the Society for the first time, the work of the organization was greatly extended in a new section of the State and large numbers of farmers and the general public as well were given an opportunity to witness a well-appointed fruit exhibition. To many it was a revelation that so fine a display of Connecticut-grown fruits could be gathered together and expressions of delight and praise were heard on every hand.

About 1,000 plates of fruit were on the tables besides a fine showing of canned fruits, jellies, pickles, etc.

The number of exhibitors was 35, all of whom received premiums, the total award of prizes amounting to \$299.55. A detailed account of these awards may be found in the Treasurer's account.

Those who comprised the committees of judges were: T. E. Cross of Poughkeepsie, N. Y., on apples and pears; R. H. Gardner and H. C. C. Miles, on peaches; G. G. Tillinghast on grapes, F. L. Perry on plums, Charles E. Steele and Miss A. T. Thomas on canned fruits, jellies and pickles; Prof. A. G. Gulley on cranberries, nuts and miscellaneous exhibits.

Not only to these efficient helpers but also to the efforts of

the Exhibition Committee, the officers and many of the members was the success of the exhibition due. Without doubt the annual exhibitions of the Society are of the greatest value to the fruit-growing interests of our State and must continue to be increasingly so for years. They are worth many times their cost to all who attend them or participate in competing for the honors.

Report of Institute Work for '1906.

There has been little, if any, change in the conduct of Farmers' Institutes in Connecticut during the past year, the various agricultural organizations each doing something in carrying on this work.

There has been increased activity on the part of the Pomological Society in arranging for and carrying out successful institutes during the season of 1905-'06. The Institute is more popular with farmers today than ever before and we feel that the Society is doing some of its best work in supplying the demand for this class of meetings. In nearly every instance the local Grange has heartily co-operated with us in holding the institutes and without their help it would have been impossible to reach the degree of success that has been attained in the work. No Institute can be made a complete success unless there is a local center of interest to begin with, and the Grange organization offers just this agency.

While the matter of Institute work for the year is covered quite fully in the report of the Secretary the subject is taken up here somewhat more in detail in order that the record shall conform with that of previous Annual Reports.

It should be understood that the Institute season covers a period from November through to November of the following year and the Society's record from November, 1905, to November, 1906, is 24 institutes held, a splendid showing for one organization in our small State. Practically every county in the State was covered, the meetings were held in series of 2, 3 or 4 each week, as far as possible to arrange it, and careful attention was given to the advertising, selection of subjects and speakers and the conduct of the meetings.

The dates and places were as follows:

Hampton, Windham Co., Nov. 22, 1905; Pomfret, Windham Co., Nov. 23; Ekonk, Windham Co., Nov. 29; Lyme, New London Co., Dec. 7; Litchfield, Litchfield Co., Jan. 2, 1906; New Milford, Litchfield Co., Jan. 3; Danbury, Fairfield Co., Jan. 4; Bridgewater, Litchfield Co., Jan. 5; Thomaston, Litchfield Co., Jan. 23; Falls Village, Litchfield Co., Jan. 25; Salisbury, Litchfield Co., Jan. 26; Chester, Middlesex Co., Jan. 31; Orange, New Haven Co., Feb. 15; Naugatuck, New Haven Co., Feb. 23; Enfield, Hartford Co., Feb. 28; Bristol, Hartford Co., March 2; New Canaan, Fairfield Co., March 7; Greenfield Hill, Fairfield Co., March 8; Stafford, Tolland Co., March 16; Newtown, Fairfield Co., March 20; New Britain, Hartford Co., March 21; Colchester, New London Co., Sept. 27; Collinsville, Hartford Co., Sept. 29; South Killingly, Windham Co., Oct. 25.

The cost of these meetings was about \$400.00.

The corps of speakers comprised leading fruit growers and also members of the Experiment Station and Agricultural College staffs. In addition, several speakers were supplied by the Dairymen's Association and the Poultry Association, dairy and fruit topics being included in the programs where local conditions demanded it. Probably the leading topics that were most popular and of strongest interest at these institutes were, the control of insect pests, especially the San Jose scale; diseases of fruit crops, apple and peach orcharding, small fruits and poultry raising.

While the Society's work so far, along Institute lines is capable of being greatly improved, yet the results already obtained are very gratifying, proving beyond a doubt the great need and value of this educational work among our farmers and that the institute has been the means of disseminating a vast amount of practical information concerning up-to-date fruit culture and other allied interests.

The following copy of a circular sent out during 1906 shows the scope of the Institute work as carried on by the Society:

"INFORMATION ABOUT INSTITUTES—READ CAREFULLY.

"The Farmers' Institute is, briefly speaking, a 'school of instruction.' Its purpose is to teach the most approved methods of agricultural practice; to create a desire for future knowledge and point out how it may be obtained; to suggest to the farmer how he may increase the profits and derive greater pleasure from his farm; in short, to disseminate such practical and helpful information as the dwellers on our farms need to know.

"In conducting the present campaign of Institutes throughout Connecticut it is proposed to make each Institute of practical interest and benefit to both young and old, to the women as well as the men. *The speakers and their subjects will all be up-to-date and practical, no theory about it.* The co-operation of all who are interested in the advancement of our State's agricultural interests is most cordially invited and it is hoped that the Institute will become a permanent feature, each year, in every town.

"OUR SPEAKERS.—Those who have been selected to address the Institutes this year are all men of practical experience in their several lines of work. They are men who have made a marked success in some branch of farming or in scientific work and are competent to instruct others.

"Subjects they will discuss embrace General Fruit Culture—Apple and Peach Orchardng—Berries and Small Fruits—Spraying—Packing and Marketing—Diseases and Insect Pests—Poultry Raising—Market Gardening and Farm Crops—The Home Garden, etc., etc. The list of available speakers is as follows:

"Prof. A. G. Gulley, Connecticut Agricultural College.

"J. H. Hale, South Glastonbury.

"Prof. L. A. Clinton, Director, Storrs Experiment Station.

"N. S. Platt, New Haven.

"J. H. Putnam, Litchfield.

Prof. W. E. Britton, State Entomologist.

"J. Norris Barnes, Yalesville.

"Dr. E. H. Jenkins, Director, Connecticut Experiment Station.

"J. M. Hubbard, Middletown.

"G. G. Tillinghast, Vernon.

"Prof. E. R. Bennett, Storrs Experiment Station.

"Chas. I. Allen, Terryville.

"A. N. Farnham, New Haven.

"Prof. G. P. Clinton, Connecticut Experiment Station.

"C. K. Graham, Connecticut Agricultural College, and others.

"At least two and sometimes three speakers will be assigned to each Institute, the Institute consisting of morning and afternoon sessions or afternoon and evening sessions as best suits the locality where held. Suggestions as to speakers and subjects desired are always welcomed and will be helpful to us in making up program. Music, recitations, etc., by local talent should form a part of every program.

"HOW TO ADVERTISE AN INSTITUTE.—The success or failure of the Institute depends very largely on the amount of advertising given it. The more who attend, the greater the good accomplished by the meeting. We must see to it that *all the people* of the town know in advance of the Institute, and above all a notice and program *must be put into every farmer's house within driving distance of the meeting*. The State Committee will meet the expense of all advertising, but must depend upon the local committee to distribute the same. First, large posters announcing the date, place, and names of speakers will be sent you. Following this, the detailed programs will be furnished for general distribution and in addition, if you can use them, a quantity of attractive cards calling attention to the Institute, which may be circulated in the public schools, to be carried home by the children; or through the rural mail carrier, or by any means that can be devised by the local committee.

"But no matter how you do it—*advertise the Institute thoroughly*.

"In conclusion, we would suggest to the local committee that some responsibility for the success of the Institute rests upon them. See that all the necessary arrangements are made in time. Talk about the meeting freely and urge everybody to come, for we can assure you no one will be disappointed and that it will prove to be the best thing of an educational nature that ever came into your town."

Fruit Crop Census in 1906.

A line of work that has been aimed at by the Society for several years past, is the collection of figures and estimates on the yield of commercial fruit crops in the State. The purpose of the undertaking is to obtain and make available for the use of the growers and buyers of fruit, as well as the general public, reliable information concerning the condition through the season, the probable yield and location of fruit crops grown within the State. This is of special importance in seasons of many crops, as was shown by our apple census in 1904 and again with peaches in 1905. By means of such crop reports the grower is enabled to inform himself as to the size and condition of the crop to be marketed and the necessity for looking up distant markets and what prices should rule the buyers and handlers of fruit are shown the location of the leading orchards and the probable output of the same, and best of all, it serves as an excellent advertisement for our fruit products.

Also as a matter of record and reference from year to year the reports are extremely valuable.

The Society has not yet developed this feature of its work as fully as its importance warrants, but proposes to improve the system as rapidly as the means at command will allow. In many other States these Crop Reports form a very strong feature of the State organization, and in New York State, for example, the fruit crop reports have been the means of posting growers, so as to save to them many thousands of dollars in the sale of their products. With the growing importance of the fruit interests in Connecticut the benefits resulting from reliable Crop Reports will be more apparent each year.

During the summer of 1906 an effort was made to collect data on the condition and yield of most of the leading fruit crops. The following circular and request for figures was mailed to every fruit grower whose address could be obtained:

SECRETARY'S OFFICE,
MILFORD, CONN., July 16, 1906.

BROTHER FRUIT GROWER:—In order that we may answer the numerous inquiries for accurate information as to the condition and extent of the

season's fruit crops in Connecticut, we must rely upon figures furnished by the growers themselves; hence we are sending the attached blank to each grower with the request that he fill out the same as fully as possible and return to the Secretary without delay.

Will you kindly give us estimates of crops on your own farm, also any additional information regarding fruits in your immediate vicinity. All these reports when tabulated will make a reliable summary of fruit crop conditions, that must prove of the greatest help in the profitable marketing of our products, especially the peach crop. If you have any fruit to sell this season you will receive the full benefit of this crop census, *so don't fail to co-operate with us in this matter.* It will take but a moment of your time to fill out the card, detach, and mail it.

Please do it at once. Also send us the names of any fruit growers in your town who are not members of the Society. We shall count on your report, sure.

Very truly,

H. C. C. MILES, *Secretary.*

The accompanying blank was also sent for growers to fill out:

CONNECTICUT POMOLOGICAL SOCIETY'S

1906 FRUIT CROP REPORT.

Reported by..... P. O. Address..... Peaches—Per cent of full crop (100 denotes full crop)..... Estimated yield (baskets)..... Apples, per cent full crop, early kinds.....; late..... Estimated yield (bush.)..... What varieties promise best.....; per cent of orchards sprayed and cultivated..... Pears..... Plums, Japanese.....; European..... Berries..... Currants..... Grapes..... Per cent of crop of each..... Extent of San Jose Scale..... State what fruit crops you grow for market.....

Don't fail to fill out above as complete as you can and mail at once.

The response was quite general, a majority of the members of the Society replying promptly with more or less complete figures.

From these reports it was possible to get a pretty accurate estimate of the yield of leading fruits for the season.

Briefly summarized the reports showed a heavy yield of peaches—90 per cent for the entire State. Apples light, from 20 to 30 per cent of a crop and quality not up to the average. More early apples than winter varieties: Baldwins produced well. Pears, not over one-half crop. Plums, extremely light crop. All berry crops bearing abundantly.

A very large proportion of growers reported their orchards as cultivated and sprayed.

The San Jose scale is well distributed all over the State and its control is the most serious problem confronting growers.

The larger orchardists, however, fear it but little, relying upon lime-sulphur spray, applied each year to keep it in check.

Most growers reported increased plantings of orchards and small fruits, apples receiving particular attention.

The above estimates were in the main confirmed when the harvest season was over. The failure of the apple crop was generally credited to unfavorable weather at blooming season and at time the fruit was setting.

NECROLOGY.

As one by one the years are added to the life of our Society it is but natural that we should be called upon to recognize the hand of Death within our membership. In the 16 years of its existence the Society has been particularly blessed, in that nearly all of its founders and older members have been spared to carry forward the important work. Yet with each recurring annual meeting we miss the face and voice of some veteran member and know instinctively that another Worker in the field of Horticulture has been called from his earthly labors to the Eternal Rest and Reward.

Since our last Report four deaths have been reported to the Secretary's office and the following notes are intended as a brief tribute to the memory of our departed members and as an expression to their loved ones of the sympathy felt by their associates in the Society.


Stephen M. Wells, of *Newington*, one of our best-known members and a man prominent in agricultural affairs in Connecticut died in 1906. Mr. Wells belonged to an old Wethersfield family and resided in that town most of his life. He was a well-known and successful breeder of Ayrshire and Jersey cattle, as well as an enthusiastic fruit grower.

Harry Sedgwick, of *Cornwall Hollow*, a member since 1903, passed away in the spring of 1906. A man of strong personality and long experience in agriculture, he will be greatly missed at Connecticut farmers' meetings where he was a well-known figure and was often heard in the discussion of farm problems. Mr. Sedgwick was a frequent contributor to the agricultural press. His later years were marked by ill health and much suffering.

B. S. Hotchkiss, of *Waterbury*, who died suddenly last summer, was an old and valued member of the Society. Few took a greater interest in the work or was more regular in attending the meetings. Interested in fruit growing all his life he was ever ready to do his share in furthering the work of the organization. His pleasant smile and ready wit will be greatly missed at our gatherings.

William H. Mansfield, of *West Hartford*, passed away after a brief illness in January, 1907. He had been a member of the Society almost since its organization and was always untiring in his efforts in its behalf. It was indeed a privilege to have known and worked with a man like Mr. Mansfield. A true gentleman in every sense of the word, he was respected and beloved by every one with whom he came in contact. With his brother, who survives him, he conducted a large farm in West Hartford with great success, making a specialty of fruits. His contributions to our exhibitions were evidences of his skill in producing fine fruit and a visit to his farm, on the occasion of one of our field meetings a few years since, furnished a rare object lesson of a splendidly conducted farm with everything in perfect order and each department managed for the best results.

Mr. Mansfield was a county Vice-President of the Society for many years and his place in the organization and in Connecticut Horticulture will not soon be filled.



LIST OF MEMBERS*

OF THE

CONNECTICUT POMOLOGICAL SOCIETY.

1907.

- Abbe, Linden S., Hazardville.
 Abbey, Mrs. C. Pelton, Gildersleeve.
 Abbott, G. Fred, Waterbury.
 Ackerly, D. L., 274 Bay street,
 Springfield, Mass.
 Ackerly, H. L., 294 Bay street,
 Springfield, Mass.
 Adams, Joseph, Westport.
 Albiston, Joseph, So. Manchester.
 Allen, Chas. D., Cheshire.
 Allen, Chas. I., Pequabuck.
 American Horticulture Distributing
 Co., Martinsburg, W. Va.
 Andrews, Cornelius, New Britain.
 Andrews, H. W., Brookfield Center.
 Andrews, J. E., New Britain.
 Andrews, Miss Hattie C., New
 Britain.
 Apothecaries Hall Co., Waterbury.
 Armstrong, Lee F., Oxford.
 Ashton, Frank B., Middletown.
 Atkins, T. J., Middletown.
 Atwater, E. A., West Cheshire.
 Atwater, Edwin B., New Haven,
 Box 207.
 Atwood, C. B., Watertown.
 Atwood, Oscar F., Brooklyn.
 Augur, Alfred H., Middlefield.
 Austin, Franklin B., Norwalk.
 Averill, H. O., Washington Depot.
 Avery, John D., No. Stonington.
 Ayer, W. Y., Saybrook.
 Bacon, Eben W., Middletown, R. F.
 D. No. 1.
 Bailey, F. B., Durham.
 Bailey, Miss Alice R., Durham.
 Bailey, Mrs. F. B., Durham.
 Baker, C. H., Andover.
 Baker, Mrs. C. H., Andover.
 Barker, J. Harry, Branford.
 Bassett, Chas. E., Fennville, Mich.
 Bates, H. A., Middletown.
 Baldwin, Walter H., Cheshire.
 Barber, Henry A., Danbury.
 Barber, Joseph, Rockville, R. D.
 Barber, Mrs. Joseph, Rockville.
 Bard, J. Sprague, Brooklyn.
 Barnes, Edward H., New Haven.
 Barnes, Erva L., Norwich, R. F. D.
 No. 3.
 Barnes, J. Norris, Yalesville.
 Barnes, John R., Yalesville.
 Barton, Richard, Thompson.
 Bass, Lucien, Willimantic, R. F. D.
 No. 2.
 Bassett, George E., Clintonville.
 Baumgardt, H. F., Highwood.
 Beach, A. S., Bridgeport, R. F. D.
 Beach, J. H., Branford.
 Beach, Z. P., Wallingford.
 Beaupain, R. T., So. Norwalk, 192
 West St.
 Beckwith, G. C., New Hartford, R. F.
 D.
 Beckwith, W. M., New Hartford, R.
 F. D.
 Beebe, C. C., Wilbraham, Mass.
 Beers, F. H., Brookfield Centre.
 Benham, Wilbur H., Highwood.
 Benjamin, Wm., East Granby.
 Bennett, E. R., Fort Collins, Colo.
 Benham, Leonard M., Highwood.
 Bigelow, E. W., Litchfield.
 Birdin, J. S., 256 Capen street, Hart-
 ford.
 Birdsey, E. T., Middletown.
 Birge, E. C., Westport.
 Bishop, Mark, Cheshire.
 Blair, Cyrus H., New Britain, R. F.
 D. No. 2.
 Bliss, Ethelbert, Ludlow, Mass., R.
 F. D.

* This list is corrected to April, 1907.

- Boardman, F. E., Middletown, R. F. D.
 Bolles, C. P., Wilbraham, Mass.
 Brainard, Chester F., Thompsonville.
 Bommer, Chas. W., Storrs.
 Boynton, C. C., Cheshire.
 Bradley, E. L., Norwalk.
 Bradley, Mrs. Sarah, Bristol, R. F. D.
 Brandegee, A. L., Farmington.
 Braman, Henry A., Eastford.
 Brewer, C. S., Hartford.
 Bridge, H. J., Hazardville.
 Brinsmade, W. H., Bridgeport, R. F. D. No. 4.
 Britton, Prof. W. E., Experiment Station, New Haven.
 Brockett, Howard R., Bristol.
 Bronson, N. S., New Haven.
 Brooks, H. R., Glastonbury.
 Brooks, John N., Torrington.
 Brown, A. E., Columbia.
 Brown, A. N., Wyoming, Del.
 Brown, Everett E., Pomfret Center.
 Brown, J. Stanford, Yonkers, N. Y.
 Brown, Stanton F., Poquonock.
 Brown, T. L., Black Hall.
 Brown, W. A., New Britain, 263 Kelsey St.
 Brown, W. S. Edward, New Britain, 5 Chapman St.
 Brownson, S. B., Shelton.
 Brundage, Benj., Danbury, R. F. D. No. 20.
 Burr, C. R., Manchester.
 Buell, H. B., Eastford.
 Burdick, A. B., Norwich, R. F. D.
 Burnham, C. N., Middlefield.
 Burnham, T. H., Bloomfield.
 Burr, Eugene O., Higganum.
 Burr, O. Perry, Storrs.
 Burton, Geo. W., Bacon Falls.
 Bushnell, Huber, Berlin.
 Bushnell, Mrs. Huber, Berlin.
 Butler, George E., Meriden.
 Butler, George S., Cromwell.
 Butler, Hezekiah, Wethersfield.
 Byington, Jas. L., Forestville.
 Callahan, Thos., Newington.
 Camp, David N., New Britain.
 Canning, Wm., Milford.
 Carrier, Wm. H., Glastonbury, R. F. D.
 Cassidy, J. J., South Britain.
 Caulfield, J. H., Warehouse Point, R. F. D.
 Chamberlain, F. A., Terryville.
 Christian, W. W., Berlin.
 Church, Foster P., Higganum.
 Churchill, Fred G., Wethersfield.
 Churchill, Levi B., Wethersfield.
 Churchill, Stephen, Wethersfield.
 Clark, Arthur F., Higganum.
 Clark, Arthur N., Higganum.
 Clark, E. H., Berlin.
 Clark, Frank T., Beacon Falls.
 Clark, George M., Middlebury.
 Clark, H. E., Middlebury.
 Clark, J. Maxwell, North Hadley, Mass.
 Clark, James R., Milton, N. Y.
 Clark, O. R., Higganum.
 Cleves, Wm. B., Binghamton, N. Y.
 Clinton, E. B., Clintonville.
 Clinton, Dr. George P., Experiment Station, New Haven.
 Clinton, Prof. L. A., Storrs.
 Coe, Ernest F., Edgewood Avenue, New Haven.
 Coe, W. T., Northford.
 Colby, Benj. F., Kensington.
 Coleman, M. L., Seymour.
 Coleman, M. P., South Coventry.
 Coles, John E., 109 Warren street, New York City.
 Colton, F. B., Hartford.
 Comstock, G. C., Norwalk.
 Cone, S. A., East Haddam.
 Cook, Allen B., Farmington.
 Cook, George A., Willimantic.
 Cook, S. E., Beacon Falls.
 Cook, S. G., Branford.
 Cooke, Marcus E., Wallingford.
 Copley, Wm. E., Hazardville.
 Cornell, J. R., Newburg, N. Y.
 Crane, Denslow & Co., 218 State street, Hartford.
 Crocker, E. W., East Hampton.
 Crowell, David A., Middletown.
 Curtis, H. B., Cheshire.
 Curtis, Newton M., Sandy Hook.
 Curtis, Robert W., Stratford.
 Daniels, H. O., Middletown, Box 646.
 Daniels, James E., Middletown, Box 646.
 Davis, A. B., Rockville.
 Davis, E., Branford.
 Davis, Edson G., Torrington.
 Davis, Henry B., Southbury.
 Davis, Mrs. A. B., Rockville.
 Dearden, Greenwood, Tolland.
 Deming, H. P., Robertsville.
 Dickinson, W. L., South Britain.
 Dimon, J. J., Hartford.
 Doolittle, Arthur H., Bethany.
 Doolittle, D. A., Bethany.

- Doolittle, S. B., Wallingford.
 Douglass, G. F., Collinsville.
 Drew, G. A., Greenwich.
 Duncan, R. R., Wethersfield.
 Dyer, E. W., Berlin.
 Eddy, J. C., Simsbury.
 Eddy, John S., Unionville.
 Eddy, S. W., Simsbury.
 Ellison, E. W., Willimantic.
 Ellsworth, David J., Windsor.
 Ellsworth, E. J., Ellington, R. F. D.
 Ellsworth, Frederick, Hartford.
 Elwood, J. F., Green Farms.
 Emmons, F. A., East Canaan.
 Emms, Bertrand O., Highwood.
 Eno, Frank H., Simsbury.
 Evans, Archie J., Hockanum.
 Fagan, Joseph A., Forestville.
 Fairchild, H. L., Bridgeport, R. F. D.
 No. 4.
 Farnham, A. N., Westville.
 Fawthrop, Walter, Cromwell.
 Fay, John H., West Cheshire.
 Fenn, Dennis, Milford.
 Fenn, Robert M., Middlebury.
 Ferguson Bros., Philadelphia, Pa., 109
 Chestnut St.
 Fisher, A. C., Boston, Mass., 40-42
 Commercial St.
 Flight, S. A., Highwood.
 Forbes, J. S., Burnside.
 Ford, Dr. Wm. J., Washington.
 Foster, Sylvester M., Westport.
 Francis, D. G., West Hartford.
 Francis, J. H., Wallingford.
 Frederickson, Olaf P., South Co-
 ventry.
 French, W. H., Wolcott.
 Frisbie, Martin M., Southington.
 Frost, Frank M., Yalesville.
 Frost, H. L., Boston, Mass., 6 Beacon
 St.
 Frost, Willis E., Bridgewater.
 Fuller, Wm. H., West Hartford.
 Fullerton, H. B., Huntington, L. I.
 Gardner, A. H., Meriden.
 Gardner, I. I., Meriden.
 Gardner, J. W., Cromwell.
 Gardner, R. H., Cromwell.
 Garrigus, H. L., Storrs.
 Gaylord, E. W., Bristol.
 Geer, Everett S., Hartford, 64 Niles
 street.
 Gehring, Fred, Rockville.
 Gelston, J. B., East Haddam.
 Gilbert, Henry, Middletown.
 Gilbert, Josiah, Wilton.
 Gilbert, Mrs. Orrin, Middletown.
 Gilbert, Orrin, Middletown.
 Gilbert, Thomas, Middletown.
 Gildersleeve, Henry, Gildersleeve.
 Gold, C. L., West Cornwall.
 Goldsborough, H. H., Eagleville, R.
 F. D.
 Gray, Chas. A., Norwich, R. F. D. 1.
 Gray, J. B., Norwich, R. F. D. 1.
 Gridley, E. D., Southington, R. F. D.
 Griffith, Geo. H., Bristol.
 Griffith, Wm. J., Bristol.
 Griswold, Henry H., Guilford.
 Griswold, H. O., West Hartford.
 Griswold, J. B., Newington.
 Griswold, R. S., Wethersfield.
 Griswold, S. A., West Hartford.
 Griswold, S. P., West Hartford.
 Griswold, Thomas & Co., South
 Wethersfield.
 Griswold, W. F., Rocky Hill.
 Groesbeck, F. O., Hartford.
 Guild, C. E., Hampton.
 Gulley, Prof. A. G., Storrs.
 Gunn, A. F., Woodbury, R. F. D.
 Hale, George, Westport.
 Hale, G. H., South Glastonbury.
 Hale, J. H., South Glastonbury.
 Hale, Moseley, South Glastonbury.
 Hale, Stancliff, South Manchester.
 Hale, Wm. C., Willimantic.
 Haley, E., Mystic, R. F. D.
 Hall, Chas. H., Cheshire.
 Hall, Geo. B., Moodus.
 Hall, G. D., Wallingford.
 Hall, G. H., Manchester.
 Hall, N. C., Lyme.
 Hall, Wilbur H., Wallingford.
 Hammer, V. T., Branford.
 Hanford, Frank F., New Britain.
 Hannah, W. L., Bristol.
 Hardy, Alfred, Rockville.
 Harrison, Orlando, Berlin, Md.
 Hart, E. S., New Britain.
 Hart, Ernest W., Forestville.
 Hart, G. W., Unionville.
 Hart, Mrs. S. A., Kensington.
 Hein, C. V., East Longmeadow, Mass.
 Henry, A. T., Wallingford.
 Hickox, Geo. H., Bethel.
 Higgins, Wm. L., M.D., South
 Coventry.
 Hilliard, H. J., Sound View.
 Hillyer, Appleton R., 91 Elm St.,
 Hartford.
 Hillyer, Prof. H. W., Farmington.
 Hitchcock, A. L., Plainville.
 Hitchcock, L. R., Watertown.
 Hollister, A. T., So. Glastonbury.

- Hollister, Geo. A., Hockanum.
 Hollister, G. H., Stonington.
 Hollister, Kirkland, South Glastonbury.
 Hollister, S. P., Storrs.
 Hopson, G. A., Wallingford.
 Hotchkiss, Chas. M., Cheshire.
 Hotchkiss, William, Bristol.
 Hough, E. J., Wallingford, R. F. D.
 Hough, George E., Wallingford, R. F. D.
 Hough, Joel R., Wallingford.
 Houston, J. R., Mansfield Depot.
 Hoyt, Edwin, New Canaan.
 Hoyt, James, New Canaan.
 Hoyt, Rev. J. Howard, New Canaan.
 Hoyt, Stephen, New Canaan.
 Hubbard, Clement S., Higganum.
 Hubbard, Elmer S., Middletown.
 Hubbard, John B., Guilford.
 Hubbard, J. M., Middletown.
 Hubbard, Robert, Middletown.
 Hull, James, Durham.
 Hulme, Charles S., Thomaston, R. F. D.
 Hunt, W. W., Hartford.
 Hurlburt, Henry A., Jr., Wilton.
 Huss, J. F., Hartford.
 Hutchinson, E. L., Andover.
 Innis, A. C., Ridgefield.
 Ives, C. E., West Cheshire.
 Ives, E. M., Meriden.
 Ives, Mrs. E. M., Meriden.
 Ives, Wm. B., Wallingford.
 Jackson, Elmer, Wilton.
 Jackson, J. C., Norwalk, R. F. D. No. 42.
 Jacobs, Arthur C., Mansfield Center.
 Jarvis, Chas. M., Berlin.
 Jarvis C. D., Storrs.
 Jenkins, Dr. E. H., Experiment Station, New Haven.
 Jennings, W. S., Fairfield, R. F. D. 9.
 Jennison, E. F., Hartford.
 Jerome, F. M., New Britain.
 Jewell, Harvey, Cromwell.
 Jewell, Mrs. Harvey, Cromwell.
 Johnson, Dr. F. E., Mansfield Depot.
 Jones, E. A., New Canaan.
 Jones, Wm. H., 127 Union street, Rockville.
 Kelley, Edward, New Canaan.
 Kelsey, Charles B., Hartford.
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 Kenney, J. P., Hockanum.
 Killam, Edw., Thompsonville.
 Kingsbury, Addison, So. Coventry.
 Kingsbury, Andrew, Rockville, R. F. D. No. 2.
 Kingsbury, John E., Rockville.
 King, Horace, Thompsonville.
 King, Mrs. J. E., Rockville.
 King, N. N., Suffield, R. F. D.
 Kinney, T. L., South Hero, Vt.
 Kirkham, John S., Newton.
 Knapp, M. C., Danbury.
 Knowles, Wm. A., Middletown.
 Knoxhall, J., Hockanum.
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 Lane, Willis A., Hazardville.
 Lapsley, Arthur B., Pomfret Center.
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 Lewis, H. D., Red Hook, N. Y.
 Lewis, Fred J., Highwood.
 Little, S. H., Wilton, R. F. D. 36.
 Loomis, John, So. Manchester.
 Loverin, D. P., Huntington.
 Lowrey, H. P., Whigville.
 Lowrey, L. L., Bristol.
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 Manchester, H. G., Winsted.
 Mansfield, Peter, West Hartford.
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 May, W. B., Hartford.
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 Mead, Whitman S., Greenwich.
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 Merwin, A. H., Durham.
 Merwin, Asaph M., Durham.
 Miles, H. C. C., Milford.
 Miller, C. H., Berlin.
 Miller, E. Cyrus, Haydenville, Mass.
 Miller, F. B., Bloomfield.
 Mills, D. E., Bristol.
 Mills, Geo. E., Farmington.

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 Morris, F. S., Wethersfield.
 Moses, A. A., Unionville.
 Mosley, A. W., Glastonbury.
 Munson, W. M., Huntington, Mass.
 Moss, J. W., West Cheshire.
 Moss, Julius, West Cheshire.
 Mudge, E. P., New Canaan.
 Mueller, C. J., Berlin.
 Munson, R. A., Highwood, Station 4.
 Murlless, Dr. F. J., Jr., Windsor Locks.
 Nettleton, H. I., Durham.
 Newhauser, Reinhardt F., Farmington.
 Newton, J. P., Saybrook.
 Newton, Robertson & Co., Hartford.
 Nickerson & Collins Co., Chicago, Ill.
 Noble, H. C., New Britain.
 Noble, John B., Hartford.
 Norton, A. F., New Britain.
 Norton, Geo. B., Berlin.
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 Paulison, Mrs. A. E., West Hartford.
 Payne, Frank C., Portland.
 Payne, Lyman, Portland.
 Pease, C. P., Ellington.
 Pease, Simeon, Fairfield, R. F. D.
 Peasley, Fredk. M., Waterbury.
 Peck, B. A., Bristol.
 Peck, James S., Westville.
 Pengeot, E. P., West Cheshire.
 Pero, Louis, So. Glastonbury.
 Perry, Chas. M., Southbury.
 Perry, F. L., Bridgeport, 302 Park St.
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 Phelps, E. J., Enfield.
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 Philips, Alan, Farmington.
 Pierpont, A. B., Waterbury.
 Pierpont, A. J., Waterbury.
 Pierpont, W. L., Waterbury.
 Pitkin, A. L., Talcottville.
 Plant, A. B., Branford.
 Plant, Albert E., Branford.
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 Porter, Marshall, Hebron.
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 Race, R. H., North Egremont, Mass.
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 Rice, J. L., Ludlow, Mass., R. F. D.
 Ripley, Louis A., Litchfield.
 Roberts, Earl C., Middletown, R. F. D. No. 2.
 Roberts, E. J., Middletown.
 Roberts, Geo. A., Milford.
 Roberts, Horace, Moorestown, N. J.
 Robertson, L. J., Manchester Green.
 Robinson, W. C., Columbia.
 Rogers, E., Southington, R. D.
 Rogers, F. D., Monson, Mass.
 Rogers, James, Simsbury.
 Root, L. C., Stamford.
 Root, L. C., Farmington.
 Root, T. H., Farmington.
 Russell, Dr. Gurdon W., Hartford.
 Russell, S., Jr., Middletown.
 Sanderson, Lucien, New Haven.
 Savage, Clarence H., Storrs.
 Savage, Theo. M., Berlin.
 Savage, Willis I., Berlin.
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 Shedd, G. V., Preston.
 Sheldon, F. J., Enfield.
 Shepardson, W. M., Middlebury.
 Shepperd, W. S., Shaker Station.
 Sherwood, N. H., Southport.

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 Smith, L. P., Lebanon.
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 Stockwell, S. T., West Simsbury.
 Stone, Mrs. C. A., Vernon Center.
 Stone, D. E., Cheshire.
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 Taylor, J. M., Kensington.
 Terrell, C. L., Cheshire.
 Terrill, Chas. T., No. Woodbury.
 The Vreeland Chemical Co., Little Falls, N. J.
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 Thomas, Wilbert H., Highwood.
 Thompson, Chas. A., Melrose.
 Thompson, Chas. J., Berlin.
 Thompson, Chas. B., Moodus.
 Thompson, John, Ellington.
 Thompson, Wm. H., East Haddam.
 Thomson, Henry M., Thompson.
 Thomson, Paul, West Hartford.
 Tillinghast, G. G., Vernon.
 Titus, Ellwood V., Glen Cove, L. I., N. Y.
 Todd, E. A., Waterbury, R. F. D.
 Trask, Abner, Silver Lane.
 Tucker, F. E., Vernon.
 Turney, Oliver, Fairfield.
 Tyler, W. M., Waterbury.
 Usher, R. C., Plainville.
 Verity, W. H., Darien, R. F. D.
 Vibberts, L. A., New Britain.
 Wakelee, G. M., Shelton.
 Wakeman, H. S., Saugatuck.
 Wakeman, J. S., Saugatuck.
 Wakeman, S. B., Saugatuck.
 Walden, B. H., Experiment Station, New Haven.
 Waldo, Harold B., Naubuc.
 Wallace, E. J., Wallingford, West Quinipiac St.
 Waller, W. E., R. D., Chestnut Hill, Bridgeport.
 Wander, Eugene A., Hartford.
 Wiard, W. S., Yalesville.
 Warncke, Louis H., Cannon Station.
 Warner, E. C., Clintonville.
 Warren, Fred, Willimantic, R. F. D.
 Warren, W. J., Gilead.
 Watrous, J. L., Meriden.
 Watson, John, Rockville, R. F. D.
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 Webster, Mrs. Geo., Jr., Rockville.
 Webster, Wm. J., Berlin.
 Welles, Charles T., 111 Washington St., Hartford.
 Wells, Dudley, Wethersfield.
 Wells, Dudley, 2d, Wethersfield.
 Wells, W. W., So. Woodstock.
 Welton, Ard, Plymouth.
 West, S. B., Columbia.
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 White, Edgar D., Andover.
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 Wilder, F. W., Watertown.
 Willard, S. F., Wethersfield.
 Williams, A. W., New Britain.
 Williams, F. B., Naugatuck.
 Williams Mfg. Co., Northampton, Mass.
 Wilson, Samuel, Wolcott.
 Winsor, Thos. K., Greenville, R. I.
 Wolcott, R. R., Wethersfield.
 Wood, O. S., Ellington.
 Woodhouse, S. N., Wethersfield.
 Woodruff, Dwight, Plymouth.
 Woodruff, R. H., Guilford.

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| Wooster, Charles R., Chester. | Yale, Allan R., Meriden. |
| Woody, C. A., Boulder, Colo. | Yale, C. E., Yalesville. |
| Wright, E. H., Clinton. | Yarrington, Chas., Seymour. |
| Wright, John L., Middletown, 342 | Yerrington, Theodore W., Norwich. |
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| Wright, W. O., Clinton. | |

